

A REVISION OF THE GENUS *TEMPLETONIA* R.Br. (PAPILIONACEAE)

by

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ABSTRACT

The endemic Australian genus *Templetonia* is revised. Eleven species are recognized and the uncertainty concerning the application of the name *T. sulcata* (Meissn.) Benth. is discussed. This discussion includes the selection of a lectotype for *Bossiaea rossii* F. Muell., a possible synonym. Descriptions, a key to the identification of species, illustrations, and distribution maps are provided, together with notes on ecology and relationships.

Two previous papers describing *T. incana* (*Muelleria* 4: 247-249 (1980)) and *T. neglecta* (loc. cit. 390-393 (1981)) should be used in conjunction with the present revision.

INTRODUCTION

Templetonia, a small genus of 11 species described by R. Brown in Ait.f., Hort. Kew. ed. 2, 4: 269 (1812), was named in honour of the Irish botanist John Templeton (1776-1825) of Orange Grove, Belfast. The genus occurs throughout much of mainland Australia and on a number of islands off Western Australia, Northern Territory and South Australia, but is absent from north-east Queensland.

Polhill (1976), in his excellent account of the Genistaceae and related tribes, divided Genistaceae in the sense of Bentham (1865) into four largely regional tribes, namely the Bossiaceae (Benth.) Hutch. in Australia, the Liparidae (Benth.) Hutch. in South Africa, the Crotalaridae (Benth.) Hutch. mainly in Africa and the Genistaceae (Adans.) Benth. predominantly in the temperate regions of the northern hemisphere. The cumulative evidence indicated that these groups are of separate origin from a basic stock most similar to parts of the Sophoreae and Podalyriaceae among living representatives. The Australian tribe Bossiaceae, of which the genus *Templetonia* is a member, comprises ten endemic genera and these ten differ more from the north temperate genera of Genistaceae *sensu stricto* than do the Liparidae or Crotalaridae. The Bossiaceae are fairly readily distinguished from the rest of Genistaceae *sensu lato* and from all other Australian tribes with joined stamens by characteristics of the seeds, calyx, anthers and uncomplicated styles.

The tribe Bossiaceae divides clearly into two groups, namely, *Lamprolobium* Benth., *Plagiocarpus* Benth., *Templetonia* and *Hovea* R.Br. with alternately basifixed and dorsifixed anthers having narrow connectives, collar-like lipped arils (except in *T. biloba*) and straight radicles, and *Bossiaea* Vent., *Platylobium* Sm., *Goodia* Salisb., *Aenictophyton* A. Lee, *Ptychosema* Benth. and *Muelleranthus* Hutch., with uniform dorsifixed anthers having a broad connective (the anther-slits down the face of the thecae, not lateral), usually hooded cap-like arils (absent in *Muelleranthus* and *Ptychosema*) and a slender curved radicle exerted from the cotyledons. The first group (the *Templetonia* group of genera) was found (Polhill, l.c.) to lack detectable leucoanthocyanidins and flavonols in the leaves, but tended to accumulate glycoflavones and isoflavones (or at least compounds simulating these), while the situation is reversed in the Bossiacea group of genera.

As indicated by Polhill, *Templetonia* exhibits a remarkable diversity in form so that segregation of other genera in the *Templetonia* group seems possible only on rather trivial features. *Hovea* differs from *Templetonia* in having the arils three or more times as long as broad, the pods not or scarcely longer than broad, and blue or purple corollas (except for the markings), *Lamprolobium* is distinguished in having

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Muelleria 5(1): 1-29 (1982).

a basally circumscissile calyx and imparipinnate leaves with 3-5(-7) oblong-lanceolate leaflets, whereas *Plagiocarpus* has sessile, mostly digitately 3-foliolate leaves, pods a little less than twice as long as broad and subsessile flowers with linear bracteoles. *Plagiocarpus* is clearly closely allied to *Templetonia* but the combination of diagnostic characters distinguishes it from *Templetonia*. Although the species in *Templetonia* represent a rather heterogeneous assemblage, all of them have in common and are distinguished from the other genera in the group by the possession of pods which are more than twice as long as broad and usually ovate bracteoles. Except for *T. egena* and *T. battii* which are obviously very closely related and *T. sulcata* which clearly is related to these two species, affinities elsewhere in the genus are difficult to detect. *T. stenophylla* appears to be allied to *T. neglecta* but the remaining species appear fairly isolated and without close allies.

In habit all species are invariably shrubs or subshrubs with woody rootstocks although there is one record (presumably correct) of *T. retusa* in Western Australia growing as a tree up to six metres high. In *T. aculeata* the stipules are spinescent but in all other species they are non-spinescent and, except in *T. incana*, inconspicuous. In *T. egena*, *T. battii* and *T. sulcata* the leaves are reduced to minute scales up to 1 mm long so that the plants have the appearance of being leafless. In *T. drummondii* the leaves are unifoliolate and in *T. hookeri* vary from 1-foliolate to digitately or pinnately 3-5-foliolate whereas in all remaining species the leaves are simple (*T. aculeata* is occasionally leafless). Despite the occurrence of unifoliolate leaves in *T. drummondii* and in *T. hookeri*, where pinnately or digitately 3-5-foliolate leaves also occur, the two species are not at all closely related. The paired bracteoles which invariably occur at or above the middle of the pedicel are ovate except in *T. biloba* and *T. incana* where they are linear. In *T. retusa* and *T. incana* the flowers are large and mostly red throughout although in the former white and yellow variants occur sporadically and in the latter some petals are sometimes partly yellow or cream. In all other species the flowers are smaller, basically yellow and brown or purplish-brown and relatively inconspicuous. The shape and structure of the corolla in *T. retusa* differs from that of the other species and suggests that it is adapted for a different means of pollination.

TAXONOMY

Templetonia R.Br. in Ait.f., Hort. Kew., ed. 2, 4: 269 (1812); DC., Prodr. 2: 118 (1825); G. Don, Gen. Syst. 2: 129 (1832); Benth., Fl. Austr. 2: 168 (1864); Benth. & Hook.f., Gen. Pl. 1: 474 (1865); Taub. in Engl., Pflanzemfam. 3, 3: 217 (1893); Diels & Pritzel, Bot. Jahrb. 35: 263 (1904); Hutch., Gen. Fl. Pl. 1: 349 (1964); Polhill, Bot. Syst. 1: 309 (1976). TYPE SPECIES: *T. retusa* (Vent.) R.Br.

Nematophyllum F. Muell., Hook. J. Bot. & Kew Gard. Misc. 9: 20 (1857).

Shrubs or subshrubs with one to several stems arising from a woody rootstock; branches usually ridged or longitudinally striate, terete or sometimes flattened, occasionally spine-tipped. *Leaves* alternate or rarely several at a node, simple, unifoliolate or rarely digitately to pinnately 3-5-foliolate, or sometimes reduced to minute scales, the lower nerves usually strongly ascending, apiculate, pungent or bilobed apically, often with a mass of fine glandular processes in the axils; leaflets, when present, terete to linear-filiform or ovate to narrow-elliptic or obovate-oblong. *Stipules* usually small and inconspicuous, occasionally spinescent; stipels present in unifoliolate and compound leaves. *Flowers* yellow and brown or purplish-brown, red or occasionally red and cream or white or yellow, 1-several from the axils, usually subtended by a few small scales as well as the bract and with a pair of usually ovate papery bracteoles near the middle or on the upper part of the pedicel, less often the bract and bracteoles linear. *Calyx* one-quarter to two-thirds as long as the corolla, persisting in fruit; upper lobes either largely united or much broader than the others, lower lobes often as long as the upper, the lowest often the longest. *Corolla* varied in structure; standard narrow-elliptic to orbicular or slightly oblate,

reflexed, with a well developed claw; keel and wing petals short and broad to long and narrow, usually with a well developed claw and auricled. *Stamen*-filaments joined in a sheath split open on one side; anthers alternately basifixed and dorsifixed, the latter usually shorter. *Style* usually slender, curved, with a small terminal stigma. *Pods* sessile to stipitate, narrow-oblong to oblong-elliptic, more than twice as long as broad, (1-) 2-several-seeded, the valves coriaceous, convex, separating along both sutures. *Seeds* elliptic to ovate, compressed, with a small hilum near one end surrounded by a collar-like often lipped or less often a cap-like (*T. biloba*) aril; radicle short, straight.

KEY TO SPECIES

1. Stipules spinescent, spreading or recurved and up to 1 cm long 8. *T. aculeata*
1. Stipules not spinescent
 2. Plant leafy, the leaves simple, unifoliolate or digitately to pinnately 3-5-foliolate
 3. Leaves simple
 4. Stipules conspicuous, 4-11 x 2.5-6 mm; stipules, young branchlets, leaves and inflorescences clothed with a dense greyish velvety indumentum 2. *T. incana*
 4. Stipules inconspicuous, up to 2 mm long; stipules, branchlets, leaves and inflorescences glabrous to densely pubescent but the indumentum not as above
 5. Stems sparingly to densely clothed with long villous hairs; leaves typically bilobed apically and the two lobes diverging somewhat, margins revolute; calyx densely clothed with dark brown villous hairs when young 3. *T. biloba*
 5. Stems glabrous; leaves obtuse, emarginate or slightly mucronate apically but not bilobed, margins not revolute; calyx glabrous outside except for hairs on the apices of the lobes
 6. Flowers red (very occasionally white or yellow); standard elliptic, 2.7-3.4 cm long; pods 3.5-8 cm long; leaves broadly obovate to almost round or narrowly cuneate-oblong to oblanceolate, 0.3-2.6 cm wide 1. *T. retusa*
 6. Flowers yellow and brown or purplish-brown; standard orbicular, 0.95-1.6 cm long; pods 1.6-3 cm long; leaves narrow-oblong to slightly obovate- or linear-oblong, 0.2-0.55 (0.7) cm wide
 7. Stems erect, prostrate or straggling; leaves (0.8) 1.8-5(7) cm long; pods obliquely oblong-elliptic on a stipe which exceeds the calyx; occurs in SE. South Australia and the eastern States 4. *T. stenophylla*
 7. Stems erect; leaves (0.45) 0.7-2.2(3.8) cm long; pods oblong, on a stipe as long as or just exceeding the calyx; confined to Western Australia 5. *T. neglecta*
 3. Leaves unifoliolate or digitately to pinnately 3-5-foliolate
 8. Leaves unifoliolate; petiole distinctly sulcate adaxially; lamina ovate to narrow-elliptic or obovate-oblong; flowers on pedicels up to 0.75 cm long 6. *T. drummondii*
 8. Leaves unifoliolate or digitately to pinnately 3-5-foliolate; petiole not as above; leaflets linear-terete to filiform; flowers on filiform pedicels 2-2.5 cm long 7. *T. hookeri*
 2. Plant appearing leafless, the leaves reduced to scales up to 1 mm long
 9. Stems terete
 10. Slender shrub to 3 m high, branches lax, not terminating in pungent points; style slender, with a small stigma; pods 1.3-2.6 x 0.6-1 cm; seeds 7.5-10(13.5) mm long, margin of aril frilly 9. *T. egena*
 10. Compact divaricate shrub to 1.4 m high, branches rigid, intricately branched, terminating in pungent points; style short, thickened, with a large flattened stigma; pods 1.2-1.5 x 0.5-0.65 cm; seeds 4.8-5 mm long, margins of aril deeply incised 10. *T. battii*
 9. Stems distinctly flattened 11. *T. sulcata*

1. *Templetonia retusa* (Vent.) R.Br. in Ait. f., Hort. Kew ed. 2, 4: 269 (1812); Ker in Edwards's, Bot. Reg. 5: t. 383 (1819); Lodd., Bot. Cab. 6: t. 526 (1821); Sims in Curtis's, Bot. Mag. 49: t. 2334 (1822); Meissn. in Lehm., Pl. Preiss. 1: 88 (1844-45); Benth., Fl. Austr. 2: 169 (1864); Diels & Pritzel, Bot. Jahrb. 35: 264 (1904); J. M. Black, Fl. S. Austr. ed. 2: 446 (1948). *Rafnia retusa* Vent., Jardin de la Malmaison 1: t. 53 (1804). Type: Herb. Ventenat (G, holo., MEL, photo!).

Templetonia glauca Sims in Curtis's Bot. Mag. 46: 2088 (1819); Lodd., Bot. Cab. 7: t. 644 (1822); Ker in Edwards's, Bot. Reg. 10: t. 859 (1825). Type: Curtis's Bot. Mag. t. 2088 (iconotype!).

Much-branched glabrous and sometimes somewhat glaucous shrub 0.3-4 m high or occasionally (fide B. L. Turner 5548) a tree to 6 m high; branches greenish-yellow to yellowish-brown, angular and sometimes slightly winged, unarmed. *Stipules* inconspicuous. *Leaves* simple, extremely variable in size and shape, broadly obovate to almost rotund to narrowly cuneate-oblong or oblanceolate, (0.5-) 1.5-3.5 (-6) x (0.3-) 0.6-1.4 (-2.6) cm, slightly to distinctly emarginate apically or minutely mucronate, nearly sessile or articulating on a short thick petiole, thickly coriaceous, venation often fairly conspicuous on the lower surface, glabrous, sometimes glaucous, with a mass of fine dark glandular processes in the axils. *Flowers* 1 or 2 per axil, large and showy, red or occasionally white or yellow, on glabrous pedicels 0.6-2 cm long, the pedicels with a pair of ovate bracteoles up to 2.5 x 2 mm near or above the middle; bracteoles glabrous or with an apical fringe of hairs. *Calyx* 0.75-1.15 cm long, the lobes much shorter than the tube, the upper much broader than the others, the lowest lobe longest, glabrous except for marginal cilia on the apices of the lobes. *Standard* elliptic, 2.7-3.4 cm long including a basal claw up to 0.5 cm long, 1-1.8 cm wide, slightly emarginate apically; wings 2.5-3.3 cm long including a claw up to 0.4 cm long, 0.4-0.65 cm wide, auricled; keel petals lightly united, 2.6-3.3 cm long including a claw up to 0.45 cm long, 0.4-0.75 cm wide, auricled. *Stamens* up to 3.3 cm long, anthers alternately basifixed and dorsifixed but not as conspicuously as in most other species. *Ovary* up to 12 mm long, on a stipe up to 5 mm long, glabrous. *Pods* oblong, sometimes obliquely so, 3.5-8 x 0.95-1.6 cm, on a stipe up to 1 cm long which usually exceeds the persistent calyx, usually with a distinct apical or lateral beak, mostly 4-12-seeded, valves coriaceous, glabrous, compressed. *Seeds* elliptic, 5-7 x 3-4 x 2-2.8 mm, yellowish- to reddish-brown, separated by transverse frass-like partitions, the small hilum surrounded by a collar-like aril with a raised lateral lip (Fig. 1).

T. retusa occurs in Western and South Australia (and on some of the off-shore islands) and is found most frequently on limestone or on sand or loam overlying limestone (Fig. 2).

REPRESENTATIVE SPECIMENS EXAMINED:

Western Australia—Guilderton (mouth of Moore river), 2.vii.1961, A.S. George 2615 (PERTH). 3.2 km SW. of Mt. Ragged, 6.xii.1960, A.S. George 2061 (PERTH). Fitzgerald River Reserve, ± 20 km N. of mouth of Fitzgerald river, 24.vii.1970, G. J. Keighery 718 (PERTH).

South Australia—Flinders Range, Parachilna Gorge, 10 km W. of Blinman, 3.x.1962, T.R.N. Lothian 1096 (AD 96312021). Eyre Peninsula, Kirton Point at Port Lincoln, 14.ix.1970, B. J. Copley 3090 (AD 97137104). Fowlers Bay, 3.x.1975, R. J. Chinnock 2736 (AD 97545040).

NOTES:

T. retusa shows considerable variation in leaf size and shape. In habit it varies from a small to a large shrub 0.3-4 m high although one specimen, B. L. Turner 5548 (PERTH) from 128 km ENE. of Esperance, Western Australia, was described as a tree 8-20 feet high.

T. retusa is widely cultivated on account of its attractive flowers. The corolla is usually red but an occasional white or yellow-flowered variant occurs irregularly throughout the distributional range of the species. The red corolla with narrow interlocked wing and keel-petals suggests that the species is adapted to different pollinators than other members of the genus. Polhill (1976) suggested that the flowers are modified to at least facilitate facultative pollination by birds and careful field observations are required to confirm this.

Information on the depredation of *T. retusa* by the larvae of *Uresiphita ornithopteralis* (Guenec) is given by Sims (1980).

T. retusa is probably the best known species in the genus and is easily distinguished from all except *T. incana* by its large red flowers. *T. incana* differs in

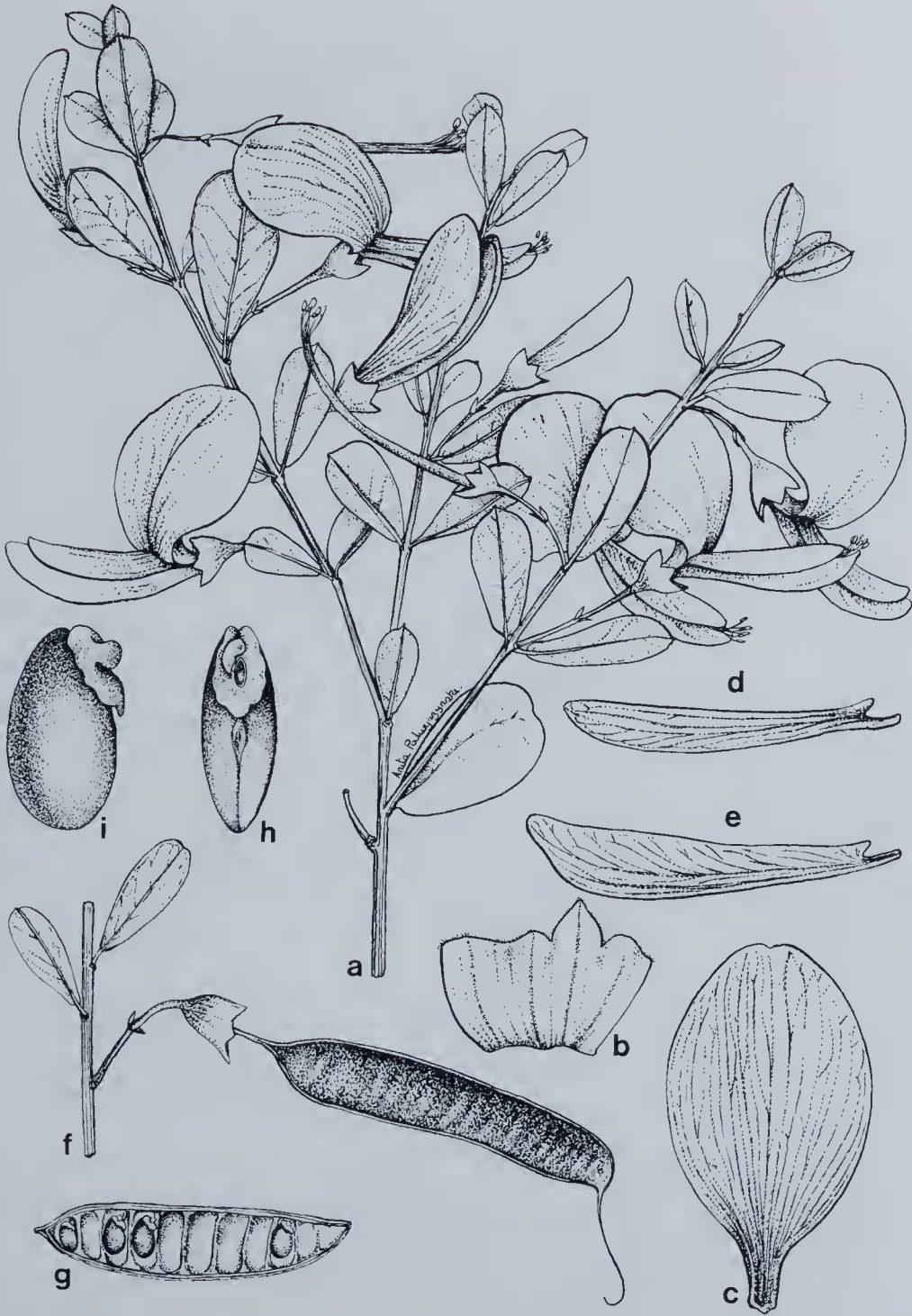


Fig. 1. *Templetonia retusa*. a—flowering twig, x 1; b—calyx opened out (upper lobe on left), x 1½; c—standard, x 1½; d—wing petal, x 1½; e—keel petal, x 1½; f—fruiting twig, x 1; g—internal view of pod-valve showing transverse frass-like partitions separating the seeds, x 1; h—seed, hilar-view, x 5; i—seed, side view, x 5. a—e from M. E. Phillips (CBG 036928); f from R. L. Specht 2645 (AD 96109039); g—i from J. W. Wrigley (CBG 036539).

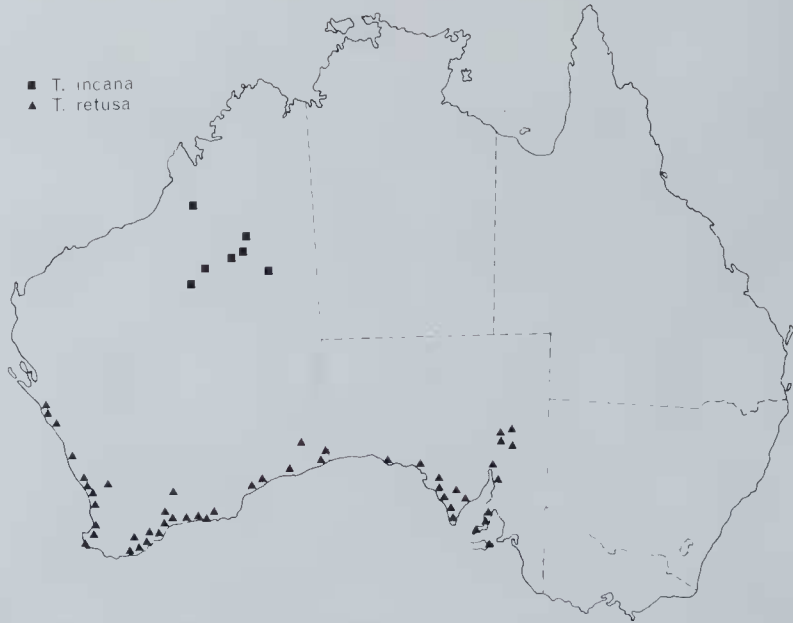


Fig. 2. The known distributions of *Templetonia incana* and *T. retusa*.

being densely clothed with a greyish-white spreading velvety indumentum, in having differently shaped corollas and leaves, large stipules and in several other ways.

2. *Templetonia incana* J. H. Ross, *Muelleria* 4: 247 (1980). Type: Western Australia, 30.4 km E.N.E. of Jupiter Well, 22° 46' S, 126° 51' E, 28.vii.1967, A. S. George 9065 (PERTH, holo.! AD!, CANB!, K!, MEL!, PERTH! iso.)

T. incana is a very distinctive species which is readily distinguished from all others in the genus by the dense greyish-white velvety spreading indumentum on the young stems, leaves, stipules, pedicels, bracts, bracteoles and calyces, by the large simple leaves and the conspicuous stipules. A full account with detailed description and illustration is provided in Ross, loc. cit. 247-249, q.v.

T. incana is fairly widely distributed in sandy soils in the Gibson, Great and Little Sandy Deserts in Western Australia. (Fig. 2).

3. *Templetonia biloba* (Benth.) Polhill, *Bot. Syst.* 1: 309 (1976). *Bossiaea biloba* Benth. in Hügel, *Enum. Pl. Nov. Holl.* 36 (1837); Walp., *Repert. Bot. Syst.* 1: 578 (1842); Meissn. in Lehm., *Pl. Preiss.* 1: 85 (1844-45); Benth., *Fl. Austr.* 2: 160 (1864). Type: Western Australia, Albany, King Georges Sound, Hügel (W, holo.!).

Bossiaea biloba var. *stenophylla* Meissn. in Lehm., *Pl. Preiss.* 1: 85 (1844-45). Type: Western Australia, Swan River, Drummond 264 (MEL 92288!, W!).

Small shrub or subshrub up to 0.5 m high with several simple or branched stems, the stems rigid, ± terete to slightly angular, mostly densely clothed with long villous hairs but sometimes only sparingly so, unarmed. *Leaves* simple, ± sessile, the basal articulation usually densely villous, very variable in size and shape from linear-cuneate or cuneate-oblong and up to 2.5 cm long x 0.7-1.5 cm wide to linear or linear-oblong and up to 6 cm long x 0.4 cm wide, typically bilobed apically and the two lobes diverging somewhat or apex obtuse or only slightly emarginate, the midrib projecting slightly and forming a short mucro, margins revolute, mostly glabrous apart from hairs on midrib and margins but sometimes densely clothed with hairs above and/or below or ± glabrous throughout. *Flowers* 1 or 2 per axil, on sparingly to densely villous pedicels up to 9 mm long, the pedicels with a basal linear villous bract up to 3.5 mm long and an apical pair of linear villous bracteoles

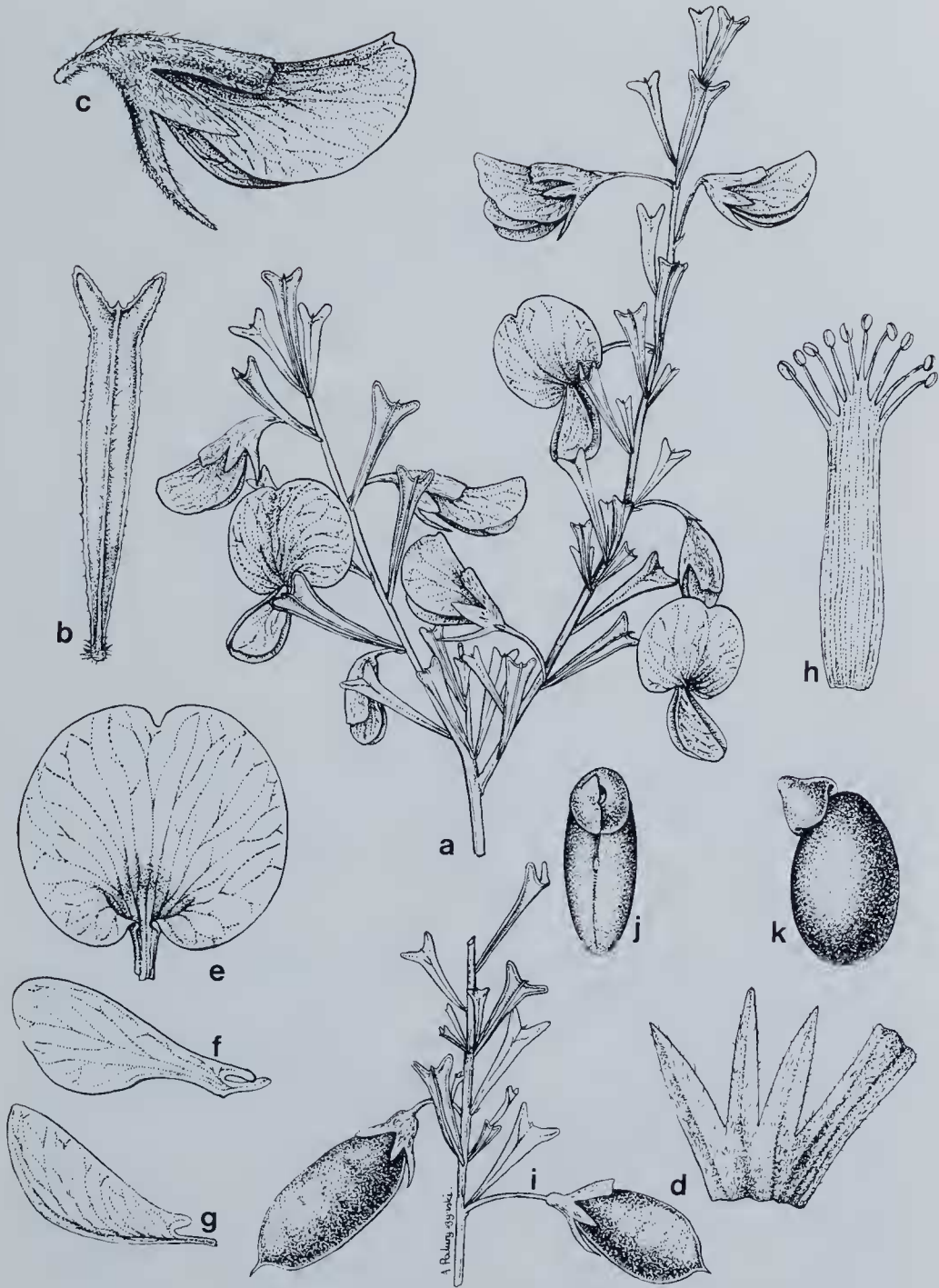


Fig. 3. *Templetonia biloba*. a—flowering twig, x 1; b—leaf, x 2; c—side view of flower, x 2; d—calyx opened out (upper lobes on right), x 2; e—standard, x 2; f—wing petal, x 2; g—keel petal, x 2; h—staminal tube opened out, x 3; i—fruiting twig, x 1; j—seed, hilar view, x 4; k—seed, side view, x 4. a, c—h, from J. Seabrook 29 (PERTH); b from E. Pritzel 273 (PERTH); i—k from Lullfitz L 1807 (PERTH).

up to 2.5 mm long. *Calyx* 8-12 mm long, the two upper lobes united into a broad truncate-emarginate lip, the lower lobes lanceolate, the lobes longer than the tube, densely clothed outside with dark brown villous hairs which become greyish-white with age, silky pubescent within. *Standard* orbicular, 12-16 mm long including a claw up to 6 mm long, 9-12 mm wide, emarginate apically, pale yellow inside with a deep yellow basal horseshoe-shaped throat surrounded by a broad purplish-brown band; wings 10-15 mm long including a claw up to 3 mm long, 4-4.5 mm wide, auricled, pale yellow except for a purplish-brown area extending from the base; keel petals lightly united, 12-15 mm long including a claw up to 3 mm long, auricled. *Stamens* up to 16 mm long. *Ovary* subsessile or very shortly stipitate, up to 4.5 mm long, glabrous. *Pods* oblong, sometimes obliquely so, usually with an acute apical beak, 2.2-3 x 0.9-1.2 cm, very shortly stipitate but stipe not exceeding the calyx, 3-5-seeded, with transverse septa between the seeds, valves coriaceous, glabrous. *Seeds* elliptic, 4-5 x 2.5-3.5 mm and up to 2.75 mm thick, chestnut-brown, the small hilum surrounded by a large cap-like aril (Fig. 3).

T. biloba is confined to the Irwin and Darling Botanical Districts of the Southwestern Botanical Province of Western Australia as defined by Beard (1980) where it occurs on sandy soils or gravel (Fig. 4).

REPRESENTATIVE SPECIMENS EXAMINED:

Western Australia—Swan River, 1843, *Preiss 1061* (MEL 92286). Lake Matilda, King Georges Sound, *Oldfield* (MEL 92287). Midland Junction, 9.vii.1898, *A. Morrison* (MEL 92285). Serpentine, S. of Armadale on road to Pinjarra, v. 1901, *L. Diels & E. Prützel* (PERTH). Swan View (Perth), ix.1902, *C. Andrews* (PERTH). Darlington, 19.vi.1949, *R. D. Royce 3061* (PERTH). S. of Muchea, Geraldton Highway, 26.vii.1959, *A. S. George 47* (PERTH). N. of Geraldton, 29.vii.1961, *R. D. Royce 6456* (PERTH). Bushmead, 1.xii.1962, *F. Lullfitz L1807* (PERTH). Helena Valley, 3.vii.1977, *J. Seabrook 29* (PERTH).

NOTES:

T. biloba was transferred from *Bossiaea* by Polhill (1976) as the species was found to have the anthers, seeds and flavonoid pattern of *Templetonia* and to be more satisfactorily accommodated within this genus. The cap-like aril with high sides in *T. biloba* approaches the form found in *Bossiaea* but is not hooded as is usually the case in *Bossiaea*, while the linear bract near the base of the pedicel and the similarly shaped bracteoles near the apex show an approach to the situation in *Hovea*.

Leaf size and shape in *T. biloba* are variable but in their typical form the cuneate-oblong leaves with bilobed apices are very distinctive. *Drummond 264*, the type of *Bossiaea biloba* var. *stenophylla* Meissn., is a narrow-leaved variant in which the apices are mostly obtuse or only slightly emarginate and not conspicuously bilobed although a few of the basal leaves are cuneate-oblong and bilobed apically. Some of the basal leaves in the specimen of *Drummond 264* housed in the Naturhistorisches Museum Wien (W) are more distinctly bilobed apically than are those on the *Drummond* specimen in MEL. This mixture of basal cuneate-oblong leaves with emarginate apices and upper linear-oblong leaves can be seen also in other specimens, for example *Royce 6456* (PERTH) from N. of Geraldton. There is a tendency for the narrow-leaved variant lacking conspicuously bilobed apices to occur more frequently in the northern part of the species range, particularly in the Geraldton-Mullewa region, but it is not considered worthy of formal taxonomic recognition.

T. biloba is readily distinguished from the other species in the genus by the leaves which are typically bilobed apically, the calyx with the upper lobes united into a broad truncate-emarginate lip and densely clothed with dark brown villous hairs outside, and the cap-like aril on the seeds.

4. *Templetonia stenophylla* (F. Muell.) J. M. Black, Fl. S. Austr. ed. 1: 304 (1924); ed. 2: 446 (1948); Domin, Biblioth. Bot. 89: 728 (1925); Willis, Handb. Pl. Vict. 2:

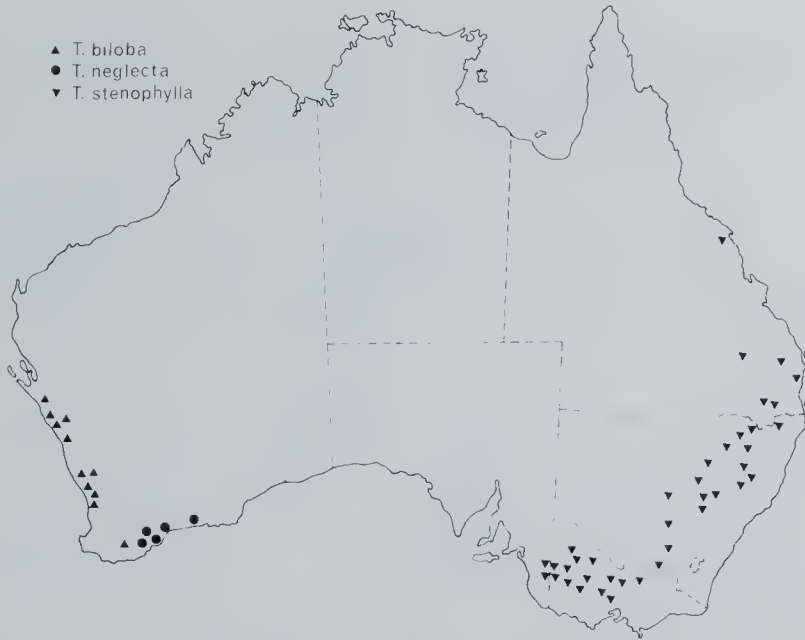


Fig. 4. The known distributions of *Templetonia biloba*, *T. neglecta* and *T. stenophylla*.

281 (1973). *Bossiaea stenophylla* F. Muell., *Fragm. Phyt. Austr.* 1: 9 (1858). Type: Victoria, near Melton, *M. Weidenbach* (MEL 20338, holo!).

Templetonia muelleri Benth., *Fl. Austr.* 2: 169 (1864), nom. illegit. Syntypes: Queensland, Wide Bay, *Bidwill* (K-photo!), *Leichhardt* (MEL 1516495!). New South Wales, Hawkesbury river, *R. Brown* (BM-photo!); Cugeegong river, *A. Cunningham* (BM and K-photos!); New England, near Tenterfield, *C. Stuart* (K-photo! MEL 1516496! MEL 1516497! MEL 1516502!). Victoria, Murray river, *Prince Paul Wilhelm* (MEL 151650!); Wimmera river, *Dallachy* (K-photo! MEL 1516499! MEL 1516500! MEL 1516503!) and Mount Arapiles, near Lake Hindmarsh, *Dallachy*, (MEL 1516494!); Melton, near Port Phillip, *Weidenbach* (MEL 20338!).

Small glabrous shrub or subshrub up to 0.6 m high with one to several simple or branched erect, prostrate or straggling stems, the stems \pm terete to somewhat angular especially apically, faintly or distinctly longitudinally striate, unarmed. *Stipules* inconspicuous, up to 1 mm long, broad-triangular. *Leaves* simple, more or less sessile, articulated basally, the lower ones narrow-oblong or oblong and the upper sometimes linear-oblong or linear, (0.8)1.8-5(7) cm long, 0.2-0.55(0.7) cm wide, glabrous, apex obtuse or with a short recurved mucro, venation on lower surface sometimes fairly conspicuous, with a mass of fine dark glandular processes in the axils. *Flowers* 1 or 2 per axil, on glabrous pedicels 4-8 mm long (up to 13 mm long in fruit), the pedicels with a basal bract up to 1.5 mm long and a pair of ovate bracteoles 1.5-2.5 x 1.2-2 mm at or above the middle of the pedicel; bracteoles glabrous or with an apical fringe of hairs. *Calyx* up to 8 mm long, the two upper lobes united except for the short acute apices, the lowest lobe slightly longer than the others, the lobes shorter than the tube, glabrous outside except for a fringe of hairs on the apices of the lobes. *Standard* orbicular, 10-15 mm long including the claw, 8-10 mm wide, emarginate apically, pale yellow inside with a deep yellow basal horseshoe-shaped throat surrounded by a purplish-brown fringe; wings up to 12.5 mm long including a claw up to 2.5 mm long, up to 4.5 mm wide, auricled, usually brown or purplish-brown throughout or pale yellow towards the apex; keel petals lightly united, up to 12.5 mm long including a claw up to 4 mm long, up to 5.5 mm



Fig. 5. *Templetonia stenophylla*. a—flowering twig, x 1; b—leaf, x 1½; c—side view of flower, x 3; d—calyx opened out (lower lobe on left), x 3; e—standard, x 3; f—wing petal, x 3; g—keel petal, x 3; h—fruiting twig, x 1; i—seed, hilar view, x 6; j—seed, side view, x 6. a—g from A. C. Beaglehole 30912 (MEL 1516457); h from A. C. Beaglehole 39636 (MEL 1516456); i and j from J. L. Boorman (NSW 44608).

wide, auricled, usually brown or purplish-brown throughout or pale yellow towards the apex. *Stamens* up to 14 mm long. *Ovary* stipitate, up to 8 mm long, glabrous. *Pods* obliquely oblong-elliptic, narrowed to an acute lateral beak apically, 1.6-2.6 x 0.85-1.05 cm, on a stipe up to 0.5 cm long which exceeds the calyx, 1-3-seeded; valves coriaceous, convex, glabrous. *Seeds* elliptic, 3.6-4.8 x 2-2.7 mm and up to 1.2 mm thick, reddish-brown, the small hilum surrounded by a collar-like aril with a raised lateral lip (Fig. 5).

T. stenophylla is fairly widely distributed extending from south-east Queensland southwards through eastern and central New South Wales, central and western Victoria to the south-east corner of South Australia in the vicinity of Bordertown (Fig. 4). The species favours dry *Eucalyptus* forest, stream banks and open situations, often on poor grey loam.

REPRESENTATIVE SPECIMENS EXAMINED:

South Australia—Bordertown, 22.viii.1940, *J. B. Cleland s.n.* (AD 966080577). ± 8 km NE. of Wolsley, ix.1961, *K. Alcock* 3 (AD 96204100). ± 16 km N. of Frances, 1.x.1972, *M. Beek* 109 (AD 97244137).

Queensland—Wide Bay Distr., ± 6 km S. of Kilkivan, Serpentine-Black Snake road, x.1959, *W. F. Ridley* QSC267 (BRI 32548). Burnett Distr., Burrandowan road (near Hodges Dip), 26.viii.1975, *Kingaroy Shire Council* (BRI 197018). Darling Downs Distr., Kragra, ix.1978, *G. Lithgow* 40 (BRI 242638).

New South Wales—Dubbo, xi.1905, *J. L. Boorman* (NSW 44608). Wyalong, 22.ix.1906, *J. L. Boorman* (NSW 44616). Warrumbungle National Park, near track to "Fans Horizon", 12.ix.1977, *M. G. Corrick* 5891 (MEL 1516462).

Victoria—Ironstone Hill, near Bendigo, ix.1920, *D. J. Paton* (MEL 92142). Mt. Arapiles, NW side, 6.ix.1969, *A. C. Beaglehole* 30912 (AD 97714008, MEL 1516457). Northern fringe of Little Desert, township of Kiata, 2.ix.1979, *M. G. Corrick* 6297 & *B. A. Fuhrer* (MEL 559337).

NOTES:

The description of *Bossiaea stenophylla* F. Muell., the basionym of *Templetonia stenophylla* (F. Muell.) J. M. Black, was based on a specimen collected by Weidenbach from "Prope oppidulum Milton in vicinia portus Phillip" and this specimen, which is also a syntype of *T. muelleri* Benth. nom. illegit., is housed in MEL (MEL 20338). I have been unable to trace a locality called Milton in the vicinity of Port Phillip and the label on MEL 20338 suggests that the locality is Melton rather than Milton: there is no suggestion of a dot above the second letter of the name and it is probable that Milton is a typographical error. The closest recorded occurrence of *T. stenophylla* to Port Phillip is from the Djerriwarrh Creek some 46 km NW. of Melbourne and a few kilometres west of Melton.

T. stenophylla appears to be most closely related to *T. neglecta*, a rare species with a restricted distribution in the Eyre Botanical District of the Southwestern Botanical Province of Western Australia as defined by Beard (1980), and from which it is separated by a large geographical discontinuity. Like *T. neglecta*, plants of *T. stenophylla* tend to be inconspicuous when not in flower.

T. neglecta differs from *T. stenophylla* in that the leaves tend to be smaller, more congested on the stems and of a different shape and texture, the flowers are always solitary in the leaf axils, and the pods are oblong and on a stipe as long as or only just exceeding the persistent calyx.

5. *Templetonia neglecta* J. H. Ross, *Muelleria* 4: 390 (1981). Type: Western Australia, 11 km N.W. of Black Head, 34°31'S, 118°48'E, 6.viii.1974, *K. Newbey* 4273 (PERTH, holo.!).

A full account of this species with detailed description and illustration is provided in Ross, loc. cit. 390-392, q.v.

T. neglecta shows no obvious affinity with any other *Templetonia* species in Western Australia although some sterile small-leaved specimens of *T. retusa* show a fairly close superficial resemblance to sterile specimens of *T. neglecta*. However, *T. retusa* is a very distinctive species which is readily distinguished from *T. neglecta* when in flower or fruit. *T. neglecta* appears to be most closely related to *T.*

stenophylla from which it is separated by a large geographical discontinuity. The differences between *T. neglecta* and *T. stenophylla* are given under the latter.

T. neglecta is a rare species with a restricted distribution in the Southwestern Botanical Province of Western Australia, being confined to the Eyre Botanical District as defined by Beard (1980). (Fig. 4).

6. ***Templetonia drummondii*** Benth., Fl. Austr. 2: 169 (1864); Diels & Pritzcl, Bot. Jahrb. 35: 265 (1904). Type: Western Australia, *Drummond* (K, holo., MEL, photo!).

Small glabrous subshrub with several prostrate or ascending stems up to 30 cm long, stems faintly longitudinally striate and \pm terete to distinctly angled especially apically, unarmed. *Stipules* up to 2 mm long, broad-triangular. *Leaves* unifoliate, with a mass of fine dark glandular processes in the axils; petiole up to 5 mm long, articulated basally, distinctly sulcate adaxially, with a pair of subulate stipellae up to 2 mm long at the apex, the apices of the stipellae often diverging; lamina articulated basally, the lower leaves ovate to almost obovate and smaller than the upper leaves which are narrow-elliptic to elliptic- or obovate-oblong, (0.5)1.5-3.5(4.8) x (0.4)0.5-0.8(1.4) cm, glabrous, mucronate apically, venation on lower surface sometimes fairly conspicuous. *Flowers* solitary, axillary, on glabrous pedicels up to 7.5 mm long, the pedicels with a basal bract up to 1.5 mm long and a pair of ovate bracteoles up to 2.2 mm long at or above the middle, glabrous except for a fringe of apical cilia and with dark glandular processes in the axils. *Calyx* up to 5.5 mm long, the two upper lobes united except for the short acute apices, the lowest lobe slightly longer than the others, especially in fruiting material, glabrous outside except for a fringe of hairs on the apices of the lobes, pubescent within. *Standard* oblate, up to 14 mm long including a claw up to 3 mm long, 10-12 mm wide, emarginate apically, brownish- or purplish-yellow outside, yellow inside with a deep yellow basal horseshoe-shaped throat surrounded by a narrow brown or purplish-brown band; wings up to 10.5 mm long including a claw up to 2.5 mm long, up to 4.2 mm wide, auricled, yellow with brown to purplish-brown near the base; keel petals lightly united, up to 12 mm long including a claw up to 2.5 mm long, up to 3.5 mm wide, auricled, yellow with a purplish-brown tip. *Stamens* up to 12 mm long. *Ovary* almost sessile, up to 6 mm long, 4-6-ovulate, glabrous. *Pods* oblong, with an acute apical beak, 1.8-2.8 x 0.85-1 cm, on a short stipe which does not exceed the calyx, mostly 4-5-seeded, valves coriaceous, glabrous, convex. *Seeds* elliptic, 4-4.5 x 3-3.2 x 2.2-2.5 mm, olive-brown, the small hilum surrounded by a collar-like aril with a raised lateral lip (Fig. 6).

T. drummondii has a restricted distribution in the Southwestern Botanical Province of Western Australia being confined to the Drummond and Dale subdistricts of the Darling Botanical District as defined by Beard (1980) where it favours laterite or sandy-clay soil. Hartley & Leigh (1979) considered *T. drummondii* to be endangered and in serious risk of disappearing from its native habitat within one or two decades if present land use and other casual factors continue to operate (Fig. 7).

SPECIMENS EXAMINED:

Western Australia—Midland Junction, viii.1900, *W. V. Fitzgerald s.n.* (PERTH). Parkerville, E. of Perth, off Toodyay Rd., viii.1902, *C. Andrews* (PERTH). 68 mile peg on Geraldton Rd., I.viii.1952, *R. D. Royce 3838* (PERTH). Corner of Pomeroy and Edward Rd., Lesmurdie, 16.viii.1965, *A. S. George 6770* (PERTH). Top of Welshpool Hill, 10.xi.1965, *A. S. George s.n.* (PERTH). 66 mile peg, Gt. Northern Highway, 30.viii.1966, *A. S. George 7789* (PERTH). 26 km N. of Williams, Albany Highway, 18.xi.1967, *A. S. George 9231* (PERTH). Stanley Street, Glen Forest, 1.ix.1978, *J. W. Green 4894* (PERTH).

NOTES:

A distinctive species which is readily distinguished by the unifoliate leaves and the adaxially sulcate petioles with a pair of prominent apical stipellae. *T. hookeri*, the only other species in which the leaves are sometimes unifoliate, has crowded linear-terete to filiform leaves, long filiform pedicels, a different distributional range, and differs in several other significant ways.



Fig. 6. *Templetonia drummondii*. a—flowering specimen, x 1; b—unifoliolate leaf showing stipules at base of petiole at point of attachment to stem and stipellae at apex, x 1½; c—adaxial view of petiole showing the conspicuous channel running down its length, the basal stipules and apical stipellae, x 4; d—abaxial view of petiole showing the points of articulation at the base of the petiole and the base of the leaf, the basal stipules and apical stipellae, x 4; e—side view of flower, x 3; f—calyx opened out (upper lobes on left), x 3; g—standard, x 3; h—wing petal, x 3; i—keel petal, x 3; j—fruiting twig, x 1; k—seed, hilar view, x 5. l—seed, side view, x 5. a—i from A. S. George 6770 (PERTH); j—l from A. S. George 9231 (PERTH).

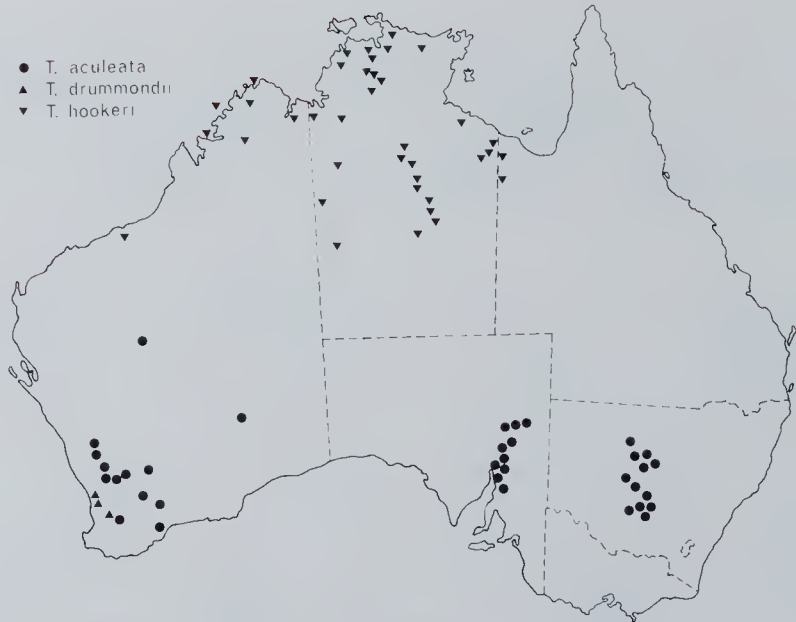


Fig. 7. The known distributions of *Templetonia aculeata*, *T. drummondii* and *T. hookeri*.

T. drummondii is in some respects superficially similar to *T. stenophylla* but the latter differs in having simple more or less sessile narrow-oblong, oblong or linear-oblong leaves, pods on a stipe which exceeds the calyx, and a different distribution.

7. ***Templetonia hookeri*** (F. Muell.) Benth., Fl. Austr. 2: 170 (1864). *Nematophyllum hookeri* F. Muell., Hook., J. Bot. & Kew Gard. Misc. 9: 20 (1857). Type: Northern Territory, Upper Victoria river and Sturt's Creek, F. Mueller (MEL 1516623!, here selected as **lectotype**).

Several-stemmed slender shrub up to 3 m high with smooth greyish-brown to greenish-yellow bark; branches greenish-yellow to yellowish-grey, terete, inconspicuously sulcate, glabrous to fairly densely appressed-pubescent, unarmed. *Stipules* inconspicuous, up to 1 mm long. *Leaves* linear-terete to filiform, 1-foliolate or digitately to pinnately 3-5-foliolate, 1.8-11.5 cm long, usually rather crowded, with a pair of inconspicuous stipellae up to 0.6 mm long at the point of attachment of the leaflets, glabrous to sparingly pubescent, with a mass of fine dark glandular processes in the axils; leaflets linear-terete to filiform and typically with a short recurved tip, articulated at the point of attachment to the petiole or rachis. *Flowers* usually 1 per axil, pale lemon-yellow, on glabrous to sparingly pubescent filiform pedicels 2-2.5 cm long (up to 4 cm long in fruit), the pedicels with a pair of ovate papery bracteoles up to 1.5 mm long towards the apex, the bracteoles glabrous except for a fringe of apical cilia or sparingly pubescent throughout. *Calyx* with 4 acuminate lobes, the upper lobe up to 10.5 mm long (up to 14 mm in fruit) and broader than the others, the two laterals up to 8.5 mm long, and the lowest up to 12 mm long (18 mm in fruit), the lobes longer than the tube, glabrous to sparingly pubescent. *Standard* orbicular, up to 18 mm long including the claw, 9-11 mm wide, emarginate apically; wings up to 12 mm long including a claw up to 2 mm long, up to 4.5 mm wide, auricled; keel petals up to 16 mm long including a claw up to 2.5 mm long, up to 6.5 mm wide, auricled. *Stamens* up to 16 mm long. *Ovary* up to 8 mm long, on a stipe up to 3.5 mm long, glabrous. *Pods* oblong, sometimes obliquely so especially when young, 2.4-3.7 x 0.95-1.3 cm, narrowed to an acute beak apically, mostly 3-4-seeded, valves yellowish-green when young but ripening to shiny brown,

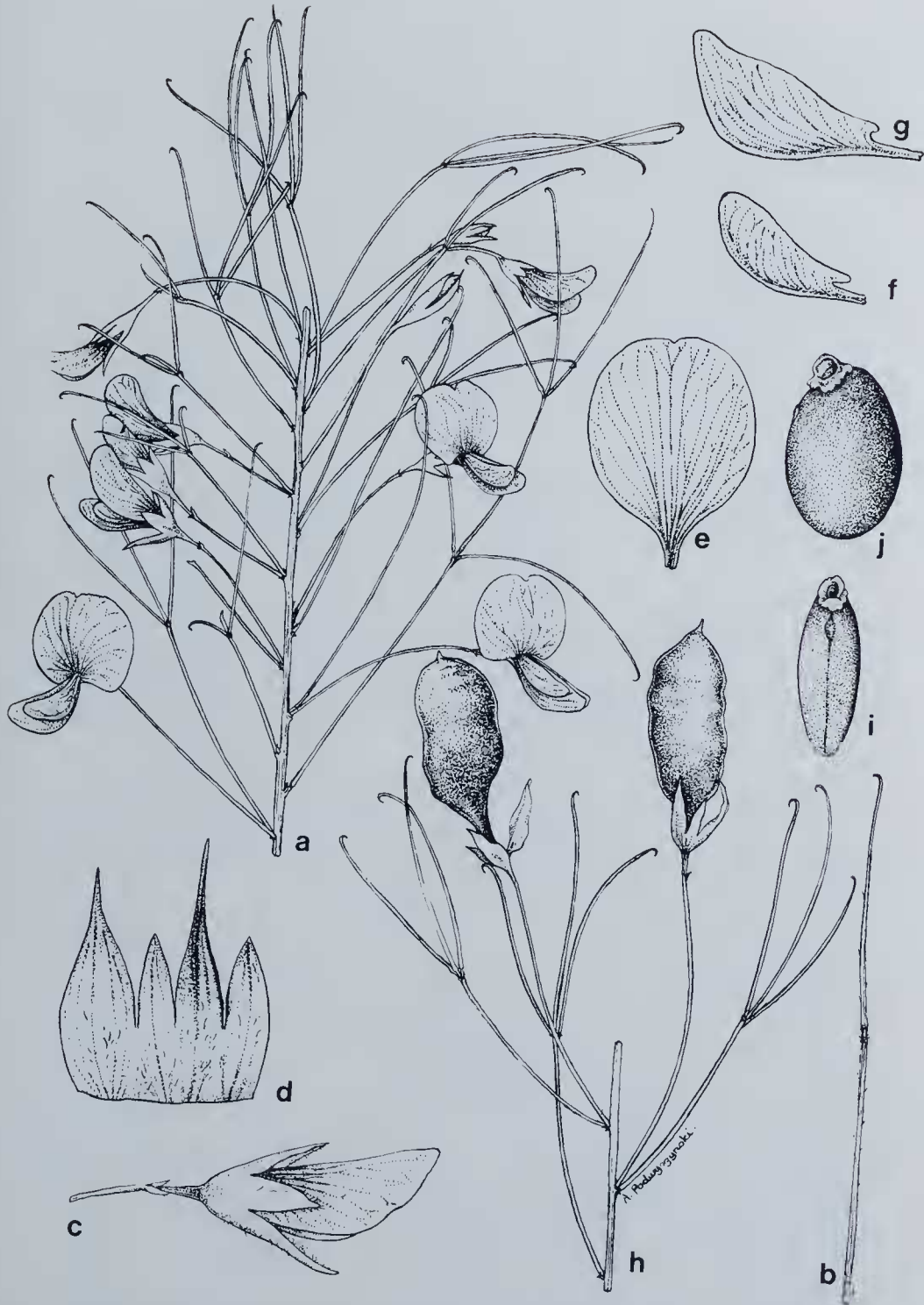


Fig. 8. *Templetonia hookeri*. a—flowering twig, x 1; b—unifoliate leaf, x 1½; c—side view of flower, x 2; d—calyx opened out (upper lobe on left), x 3; e—standard, x 2; f—wing petal, x 2; h—fruiting twig, x 1; i—seed, hilar view, x 4; j—seed, side view, x 4. a—c, h, from I. B. Wilson 394 (NT 20236); d—g from J. H. Calaby AE 364 (NT 38803); i, j from N. M. Henry 848 (NT 38778).

coriaceous, convex, glabrous. *Seeds* elliptic, 4.5-6.5 x 3-4 mm and up to 2.5 mm thick, dark brown, the small hilum surrounded by a collar-like aril with a raised lateral lip (Fig. 8).

T. hookeri occurs in northern Western Australia (including some of the off-shore islands), the central and northern areas of the Northern Territory and the north-western corner of Queensland where it is found most frequently on sandstone or quartzite outcrops or in laterite or gravelly soils along creeks (Fig. 7).

REPRESENTATIVE SPECIMENS EXAMINED:

Western Australia—Warralong, 20.v.1941, *N. T. Burbidge 813* (PERTH). Augustus Island, Bonaparte Archipelago, 16.v.1972, *P. G. Wilson 10812* (PERTH). Wood Island (North), 12.vii.1973, *P. G. Wilson 11522* (PERTH).

Northern Territory—± 70 km NE. of Maranboy Police Station, 6.iii.1965, *Lazarides & Adams 112* (BRI 157643, CANB 151794, MEL 1517029, NT 39498). 94 km N. of Tennant Creek, 25.xi.1970, *J. R. Maconochie* (NT 29059). 1.6 km W. of South Alligator crossing, El Sharana, 16.1.1973, *J. H. Calaby AE 364* (BRI 16 3878, CANB 237655, NT 38803).

Queensland—East Branch, Settlement Creek, viii.1922, *L. Brass 173* (BRI 243361). 16 km SSE. of Morestone, 28.v.1948, *R. A. Perry 1054* (BRI 243363, NT 20238). Burke Distr., 26 km from Gunpowder on the Quamby Road, 23.x.1972, *G. W. Athofer 297* (BRI 149772).

NOTES:

A distinctive species which is readily distinguished by the linear-terete to filiform 1-foliolate or digitately to pinnately 3-5-foliolate leaves and the long filiform pedicels. In addition, *T. hookeri* has a more northern distribution than the other species in the genus. *T. drummondii* is the only other species with unifoliolate leaves but the two species cannot be confused.

8. *Templetonia aculeata* (F. Muell.) Benth., Fl. Austr. 2: 170 (1864); Moore & Betche, Handb. Fl. N.S.W. 143 (1893); Diels & Pritzel, Bot. Jahrb. 35: 265 (1904); J. M. Black, Fl. S. Austr. ed. 2: 446 (1948). *Bossiaea aculeata* F. Muell., Fragm. Phyt. Austr. 2 (15): 120 (1861). Type: Western Australia, near the Culjong River, *A. Oldfield* (MEL 20339, holo.! There is no type material of *T. aculeata* at Kew or the British Museum (Natural History)).

Many-stemmed low subshrub or shrub up to 0.4 m high with simple or branched stems, the stems green or yellowish, ± terete, inconspicuously or conspicuously ridged, sometimes somewhat zig-zagging, usually sparingly to densely pubescent with appressed or somewhat spreading hairs especially between the ridges but sometimes ± glabrous. *Stipules* spinescent, in pairs, up to 1 cm long, spreading or recurved. *Leaves* present or absent, simple, the lower ones obovate or obovate-oblong and the upper linear-oblong, 0.5-3 x 0.1-0.8 cm, pungent-pointed, usually sparingly to densely pubescent especially on the upper surface but sometimes glabrous, sometimes with conspicuous venation on the lower surface, with a mass of fine dark glandular processes in the axils. *Flowers* 1 or 2 per axil, on pedicels up to 5 mm long, the pedicels glabrous to sparingly pubescent, with a very small inconspicuous basal bract with fimbriate margins and a pair of ovate bracteoles up to 3.5 x 3.5 mm at about the middle of the pedicel which often overlap the base of the calyx; bracteoles glabrous to densely pubescent outside and within, with marginal cilia apically. *Calyx* up to 9 mm long, the 2 upper lobes united and slightly broader than the others, the lowest longest, the lobes shorter than the tube, sparingly to densely pubescent outside, the apices of the lobes with marginal cilia and often with a purplish tinge. *Standard* orbicular, 12-18 mm long including a claw up to 3 mm long, 10-13 mm wide, slightly emarginate apically, apparently usually yellow inside with a deep yellow basal horseshoe-shaped throat surrounded by a dark red or purplish fringe and with a dark red or purplish midvein extending to the emarginate apex, dark red or purplish outside with a yellow border; wings up to 14 mm long including a claw up to 2 mm long, up to 4.5 mm wide, auricled, mostly dark red or purplish throughout or yellow towards the apex; keel petals lightly united, up to 14 mm long including a claw up to 3.5 mm long, up to 5 mm wide, auricled, dark red or purplish. *Stamens* up to 14 mm long. *Ovary* shortly stipitate, glabrous. *Pods* ob-



Fig. 9. *Templetonia aculeata*. a—flowering twig, x 1; b—leaf and paired stipular spines, x 2; c—side view of flower, x 2; d—calyx opened out (upper lobe on left), x 3; e—standard, x 3; f—wing petal, x 3; g—keel petal, x 3; h—fruiting twig, x 1; i—seed, hilar view, x 7; j—seed, side view, x 7. a—g from R. Hill 1411 (AD 96532156); h—j from M. D. Crisp 1573 (AD 97709767).

liquely obovate or obovate-elliptic, 1.5-2 x 0.6-0.75 cm, on a stipe up to 0.7 cm long which exceeds the calyx, narrowed to an acute beak apically, mostly 3-4-seeded; valves coriaceous, scarcely raised, glabrous. *Seeds* 2.6-3.9 x 1.4-2.5 mm, separated by transverse frass-like partitions, the small hilum surrounded by a collar-like aril with a raised lateral lip (Fig. 9).

T. aculeata has a disjunct distribution in Western Australia, South Australia and New South Wales, the populations in each State being widely separated from those in the adjacent State (Fig. 7). The species is usually found in deep sandy soil or rocky areas.

REPRESENTATIVE SPECIMENS EXAMINED:

Western Australia—78 km E. of Jerramungup, 24.viii.1963, *V. E. Sands* 638.16.18 (PERTH). Coolgardie Distr., 32 km E. of Lake King township, 16.ix.1964, *P. G. Wilson* 3243 (AD 96526258, PERTH). Helms Distr., ± 35 km W. of Plumridge Lakes, 8.5 km WNW. of Salt Creek airstrip, 15.ix.1979, *M. D. Crisp* 5837, *J. Taylor & R. Jackson* (MEL 564747).

South Australia—Northern Flinders Range, Arcoona Bluff Range N. of Arcoona Pound, ± 9 km E. of Owicandana Hut, 15.ix.1956, *Hj. Eichler* 12615 (AD 95709111). Southern Flinders Range, Rail Reserve between Wirrabara and Yandiah, 5.xi.1969, *B. Copley* 2485 (AD 97009188). ± 6 km W. of Gladstone, 10.ix.1970, *B. Copley* 3072 (AD 97119340).

New South Wales—3.2 km E. of Matakana, 16.ix.1972, *G. M. Cunningham* 433 & *P. L. Milthorpe* (NSW 127988). 37 km SW. of Nyngan on Bobadah Rd., 30.viii.1974, *G. M. Cunningham* 2745 & *P. L. Milthorpe* (NSW 143388). Western plains, Garoolgan turn-off, 22 km E. of Rankins Springs towards West Wyalong, 19.xi.1975, *M. D. Crisp* 1573 (AD 97709767, CBG 66548).

NOTES:

There is a sheet of *T. aculeata* in the Western Australian Herbarium, Perth, with a printed "National Herbarium of Victoria, Melbourne" label on which the following is written: "Templetonia aculeata Benth. Near the Culjong W.A. (Old.)". The PERTH sheet consists of five separate twigs, two of which are sterile, and one detached flower and the remnants of another. The other three twigs have floral remnants attached. As the PERTH material appears to consist of a mixed gathering and does not match the holotype collection in MEL, it is not considered to be part of the type collection.

Flower colour in *T. aculeata* requires clarification. Black (1948) described the standard as "white and purple" and the keel as "dark-purple", while the flowers have been variously described by collectors as yellow and red, dark red and yellow, red, brown and yellow, and brown. The flower colour provided in the above description was taken from a colour transparency accompanying *M. D. Crisp* 5837 et al. It is not clear whether flower colour varies to the extent suggested by Black and by other collectors.

T. aculeata is a very distinctive species which is readily distinguished from all others in the genus by the spinescent stipules and the pungent leaf apices.

Amongst the material previously referred to *T. aculeata* is a sterile leafless specimen, *C. W. E. Moore* 5721 (BRI 174670, CANB 209396, NSW 143393) from "Tundulya", ± 40 km S.E. of Louth, New South Wales. The specimen bears little resemblance to typical *T. aculeata* but its identity is not known.

9. *Templetonia egena* (F. Muell.) Benth., *Fl. Austr.* 2: 170 (1864); *Moore & Betche*, *Handb. Fl. N.S.W.* 144 (1893); *J. M. Black*, *Fl. S. Austr.* ed. 2: 446, fig. 612 (1948); *Willis*, *Handb. Pl. Vict.* 2: 281 (1973). *Daviesia egena* F. Muell., *Trans. & Proc. Victorian Inst. Advancem. Sci.* 1854-55: 118 (1855). *Bossiaea egena* (F. Muell.) F. Muell., *Hook. J. Bot. & Kew Gard. Misc.* 8: 43 (1856); *Fragm. Phyt. Austr.* 3: 94 (1862). Type: South Australia, "Murray-scrub Morundam versus", *F. Mueller*, Feb. 1851 (MEL 20345 here selected as **lectotype!**).

Many-stemmed leafless glabrous shrub up to 3 m high, often as wide as or wider than high; branches green or yellowish, ± terete, usually distinctly ridged, unarmed. *Stipules* absent. *Leaves* reduced to minute scales up to 1 mm long, with a mass of fine dark glandular processes in the axils. *Flowers* in lax terminal racemes, mostly 1 or 2 per axil, on glabrous pedicels up to 1.75 mm long which have a pair of ovate

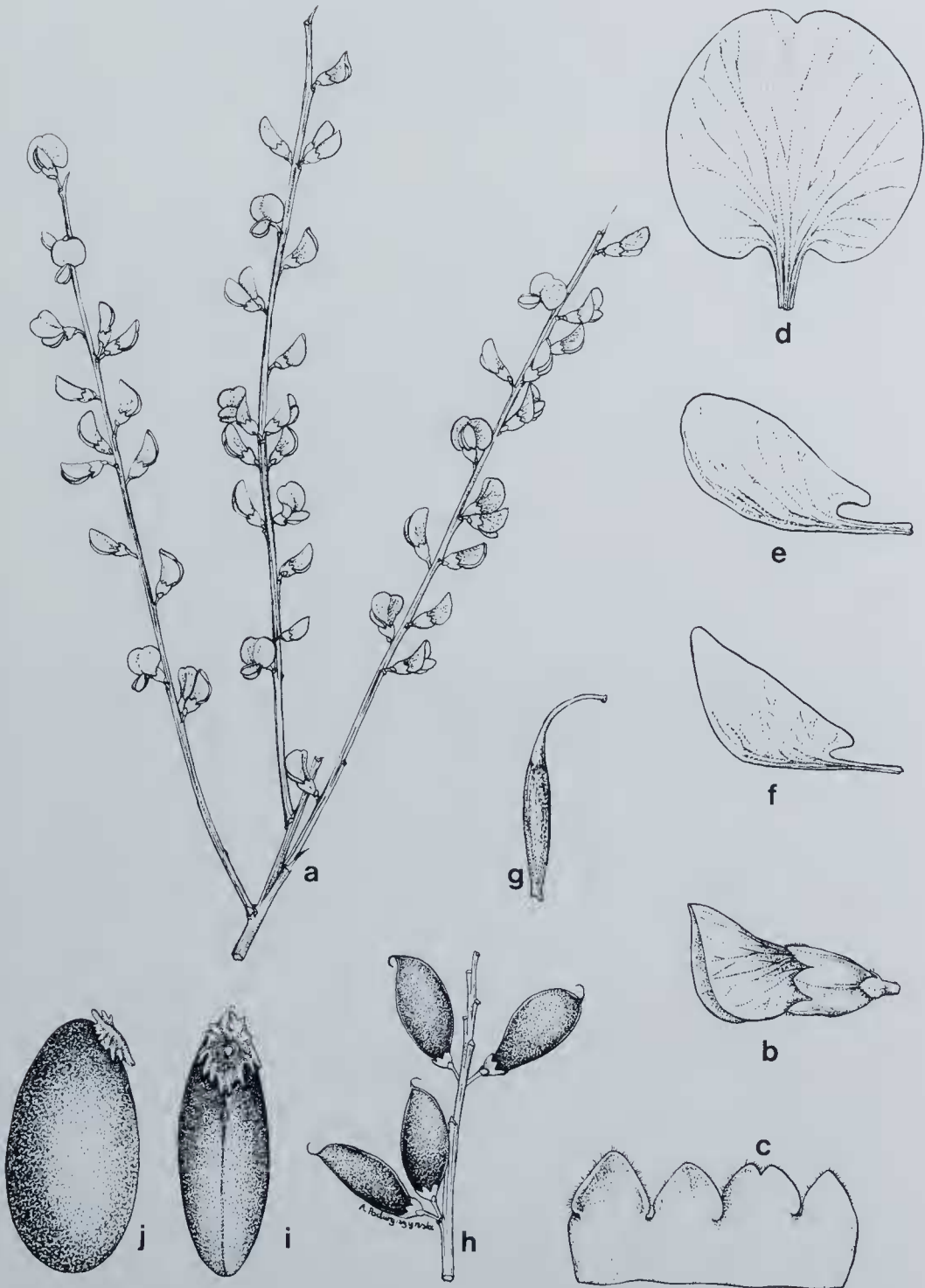


Fig. 10. *Templetonia egena*. a—flowering twig, x 1; b—side view of flower, x 4; c—calyx opened out (lower lobe on left), x 6; d—standard, x 6; e—wing petal, x 6; f—keel petal, x 6; g—gynoecium showing slender style and small terminal stigma, x 4; h—fruiting twig, x 1; i—seed, hilar view showing frilly margin to aril, x 4; j—seed, side view, x 4. a—g from N. N. Donner 3715 (MEL 1503343); h from A. C. Beaglehole 57011 (MEL 1507639); i, j from H. U. Stauffer and P. G. Wilson 5424 (MEL 564627).

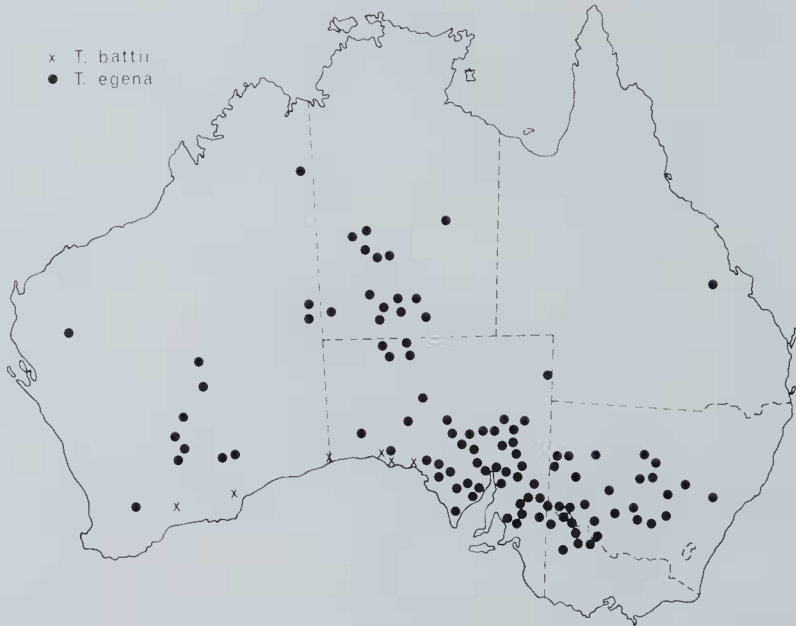


Fig. 11. The known distributions of *Templetonia battii* and *T. egena*.

bracteoles up to 2 mm long near the apex, the bracteoles glabrous except for marginal cilia. *Calyx* up to 4 mm long, the lowest lobe longer than the others, the lobes shorter than the tube, glabrous except for a fringe of hairs on the apices of the lobes. *Standard* orbicular, 5.5-7 mm long including a claw up to 2 mm long, 5-7 mm wide, emarginate apically, with a dark yellow horseshoe shaped throat surrounded by a purplish-brown fringe, pale yellow on margins, deep purplish outside on margins when young but fading to paler purplish-brown and the margins becoming yellow, the purplish-brown zone surrounding a darker yellow inner area; wings 5-7 mm long including a claw up to 2 mm long, 2-2.5 mm wide, auricled, purplish-brown; keel petals lightly united, 4.5-6.5 mm long including a claw up to 2 mm long, 1.8-2.5 mm wide, auricled. *Stamens* up to 7 mm long. *Ovary* ± sessile, glabrous; style slender, curved, with a small terminal stigma. Pods narrowly oblong-elliptic, often obliquely so, 1.3-2.2(2.6) x 0.6-1 cm, sessile, narrowed to an acute beak apically, 1-seeded, valves coriaceous, convex, glabrous, deep brown when mature. *Seeds* elliptic, 7.5-10(13.5) x 3.5-4.5(5.5) x 2.5-3.25 mm, compressed, light brown, the small hilum surrounded by a collar-like aril with a frilly margin (Fig. 10).

T. egena occurs in each mainland state and is the most widely distributed species in the genus (Fig. 11). Several apparent discontinuities exist in its distribution, the largest being between the solitary Queensland record and the nearest populations in New South Wales. *T. egena* occurs most frequently in deep sandy soil or laterite.

REPRESENTATIVE SPECIMENS EXAMINED:

Western Australia—Gordon Downs, 13.ix.1950, *R. D. Royce* 3332 (PERTH). Bilgarrie Cutarrie Bore, ± 215 km N. of Laverton, 28.viii.1968, *P. G. Wilson* 7408 (PERTH). 14 km N. along Docker River road from Giles—Mulga Park road, 21.vii.1974, *A. S. George* 12051 (PERTH).

Northern Territory—73 km W. of Finke Town, 14.x.1957, *G.M. Chippendale* (BRI 7829, MEL 564630, NSW 44524, NT 3972). 11 km S. of Lasseters Cave, Petermann Ranges, 3.xi.1970, *C. Dunlop* 2028 (NT 28676). 24 km E. of Curtin Springs H.S., 23.viii.1973, *J. R. Maconochie* 1816 (NT 40570).

South Australia—Flinders Range, 14.4 km SW. of Carrieton, 27.xi.1963, *H. U. Stauffer & P. G. Wilson* 5424 (AD 96827257, MEL 564627, NSW 99360). Lake Torrens Basin, Roxby Downs Station, ± 3 km E. of homestead, ± 100 km NNW. of Woomera, 19.viii.1971, *B. Lay* 394 (AD 97149224). ± 32 km S. of Yunta, 2.x.1971, *N. N. Donner* 3715 (AD 97206168, MEL 1503343).

Queensland—Leichhardt Distr., 24 km SSE. of Blackwater Township, 6.ix.1961, *M. Lazarides & R. Story* 56 (CANB 111976, MEL 1507638, NSW 1434032).

New South Wales—Broken Hill, xii.1918, *E. C. Andrews s.n.* (NSW 44556). Moulamein, 9.x.1970, *W. E. Mulham* (NSW 114018). “Urunda”, Hermidale, 26.ix.1977, *D. F. Thompson 1870* (NSW 143394).

Victoria—Robinvale Distr., Wemen, viii.1960, *A. R. Begg s.n.* (MEL 564659). Hattah Lakes National Park, Hattah area, 10.ix.1960, *A. C. Beauglehole 39180* (MEL 564621). Meringur Bushland Reserve, 15 km E. of Morkalla, 31.x.1977, *A. C. Beauglehole 57011* (MEL 1507639).

NOTES:

D. E. Symon 1115 (ADW 23586, NT 20242) from the S.W. corner of Commonwealth Hill Station, \pm 38.4 km NW. of Wynbring railway station, South Australia, is an unusually robust specimen of *T. egena* with large pods and seeds. The pods are slightly longer than usual (2.2–2.5 x 0.9–0.95 cm) and the seeds are the largest seen being up to 13.5 x 5.5 x 3.25 mm. Other isolated specimens with large pods similar to those of *Symon 1115* occur infrequently throughout the range of the species, for example *D. J. Nelson 98* (NSW 143401, NT 8489) from 14 km S. of Mount Wedge H.S., Northern Territory and *A. Morris* (NSW 44555) from Broken Hill, New South Wales, the two latter specimens having immature seeds.

A. R. Begg, the collector of a specimen (MEL 564659) from Wemen, Robinvale Distr., Victoria, comments that *T. egena* has “a peculiar scent when in flower (almost a perfume) which attracts many insects and moths, in particular one of the latter which is a brilliant iridescent blue.”

Mueller (1892) reported that a woman from Darling River died one hour after drinking a cupful of an infusion of *T. egena* although, as indicated by Hurst (1942), this does not necessarily constitute proof of the poisonous properties of the species as the death may have resulted from the ailment which led to the infusion being taken. Everist (1974) makes no mention of *T. egena* being poisonous to humans or animals.

T. egena is most closely related to *T. battii* which differs, however, in having shorter more rigid intricately branched pungent-tipped branches, shorter inflorescences, short thickened styles with larger stigmas than in *T. egena*, and smaller seed in which the collar-like aril has a small slightly raised lateral lip and more deeply incised margins. The \pm terete slightly ridged stems readily distinguish *T. egena* from *T. sulcata* in which the stems are distinctly flattened.

10. *Templetonia battii* F. Muell., Chem. and Drugg. Australas. 2, 2: 31 (1 Feb. 1887); Bot. Centralbl. 30, 6: 180 (1887); J. M. Black, Trans. & Proc. Roy. Soc. S. Austr. 43: 33 (1919); J. M. Black, Fl. S. Austr. ed. 2: 446 (1948). *Bossiaea battii* (F. Muell.) R. Tate, Fl. Extra-trop. S. Austr. 65 (1890). Syntypes: Western Australia, Eucla, *J. D. Batt* (MEL 564735!, MEL 564736!).

Several-stemmed leafless glabrous divaricate shrub up to 1.4 m high, sometimes as wide as or wider than high; branches rigid, intricately branched, \pm terete, distinctly but inconspicuously longitudinally ridged, terminating in pungent points. *Stipules* absent. *Leaves* reduced to minute scales up to 1 mm long, with a mass of fine dark glandular processes in the axils. *Flowers* in short terminal racemes, 1 or 2 per axil, yellow and brown, on short glabrous pedicels 0.5–1.3 mm long, the pedicels with a pair of ovate bracteoles up to 1.5 mm long and 1.8 mm wide from near the middle to towards the apex, the bracteoles glabrous throughout or margins of lobes minutely ciliate, overlapping the base of the calyx. *Calyx* up to 3.7 mm long, the lowest lobe longer than the others, the lobes shorter than the tube, glabrous throughout or apices of lobes minutely ciliate. *Standard* slightly oblate, 5.5–6.5 mm long including a claw up to 1.5 mm long, 6–7 mm wide, emarginate apically; wings 4.8–5.5 mm long including a claw up to 2 mm long, up to 2.5 mm wide, auricled and infolded basally, usually slightly longer than the keel petals; keel petals lightly united, 4.5–5 mm long including a claw up to 1.6 mm long, 1.8–2.2 mm wide, auricled. *Stamens* up to 4.7 mm long. *Ovary* \pm sessile, glabrous, up to 2.5 mm long; style short, thickened, curved, with a large terminal stigma. *Pods* narrowly oblong-elliptic, 1.2–1.5 x 0.5–0.65 cm, sessile, narrowed to an acute beak apically, 1-seeded,

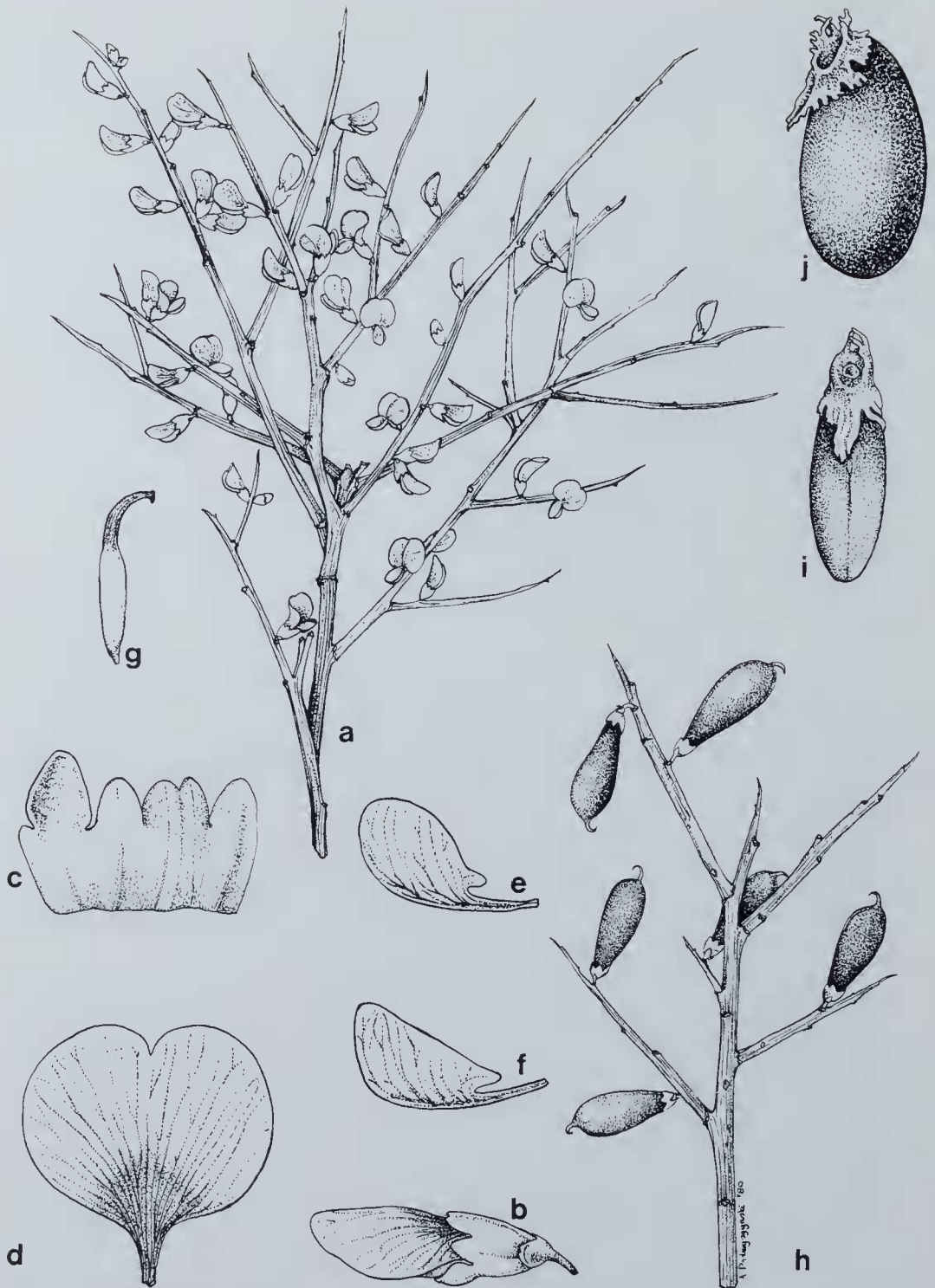


Fig. 12. *Templetonia battii*. a—flowering twig, x 1; b—side view of flower, x 4; c—calyx opened out (lower lobe on left), x 6; d—standard, x 6; e—wing petal, x 6; f—keel petal, x 6; g—gynoecium showing short thick style and large terminal stigma, x 4; h—fruiting twig, x 1; i—seed, hilar view, x 6; j—seed, side view, x 6. a, b from J. B. Cleland s.n. (AD 966080567); c—h from R. H. Ashby s.n. (AD 97551010); i, j from J. D. Batt (MEL 564736).

valves coriaceous, convex, glabrous, deep brown when mature. *Seeds* elliptic, 4.8-5 x 2.5-2.8 mm and \pm 2 mm thick, compressed, the small hilum surrounded by a collar-like aril with a small slightly raised lateral lip, the margins frilly and more deeply incised than in *T. egena* (Fig. 12).

T. battii is a rare species with a fairly restricted distribution between Lake King in Western Australia and Denial Bay, South Australia (Fig. 11), and is usually found growing in limestone.

REPRESENTATIVE SPECIMENS EXAMINED:

Western Australia—Eucla, *J. D. Batt* (MEL 564730). 3 km SE. of Hatters Hill, \pm 41 km NE. of Lake King, 9.viii.1980, *K. Newbey 5466* (PERTH). 20 km WSW. of Ponier Rock, \pm 78 km S. of Balladonia Motel, Eyre Highway, 14.ix.1980, *K. Newbey 7360* (PERTH).

South Australia—Colona Homestead, 288 km E. of Eucla, 27.viii.1947, *J. H. Willis* (MEL 564725, PERTH). Western Eyre Peninsula, Koonibba, \pm 25 km NE. of Ceduna, 17.ix.1957, *J. B. Cleland s.n.* (AD 966080567). \pm 1 km N. of Denial Bay, 20 km W. of Ceduna, 10.ix.1960, *P. G. Wilson 1534* (AD 96134007). Denial Bay, 20 km inland from Ceduna, 26.vii.1969, *B. Copley 2611* (AD 96937251). Near Nundroo Well, 31°45'S, 132°12'E, 15.xi.1975, *R. H. Ashby s.n.* (AD 97551010).

NOTES:

There are three sheets of *T. battii* collected by J. D. Batt in the National Herbarium of Victoria although none is accompanied by a label in Batt's hand. MEL 564736 is a fruiting specimen with "Templetonia battii F. v. M." written in Mueller's hand and "Eucla, W. Aust. Jan. 1887 J. D. Batt" in another hand. MEL 564735 is a flowering specimen accompanied by a handwritten description of the flowers in Mueller's hand, while MEL 564730 is a fruiting specimen with "Templetonia" written in Mueller's hand and a pencilled label which reads "J. D. Batt West Australia" in another hand.

Mueller's description of *T. battii*, in *Chem. and Drugg. Australas.* 2, 2:31 (1887), was based on flowering and fruiting material so it is clear that at least two of the three MEL sheets are syntypes. Mueller described the pods in the protologue as "dark-greenish" which suggests that MEL 564730 is not a syntype as the pods in this specimen are pale yellowish brown in contrast to the dark pods in MEL 564736. J. D. Batt resided in the Eucla district for at least a decade (1886-1896) and would have had ample opportunity to collect further material subsequent to the publication of the species (Willis, 1959). There is no type material of *T. battii* at Kew or the British Museum (Natural History).

T. Battii is most closely related to the widespread *T. egena* and the differences between the two are discussed under the latter. As in the case of *T. egena*, the \pm terete stems readily distinguish *T. battii* from *T. sulcata* in which the stems are distinctly flattened.

11. ***Templetonia sulcata*** (Meissn.) Benth., *Fl. Austr.* 2:171 (1864); Moore & Betche, *Handb. Fl. N.S.W.* 144 (1893); J. M. Black, *Fl. S. Austr.* ed. 2:446 (1948); Willis, *Handb. Pl. Vict.* 2:281 (1973). *Bossiaea sulcata* Meissn. in *Pl. Preiss.* 1:81 (1844-45). Type: Western Australia, Avon River, York, *Preiss* 1028 (K!, MEL!). Possible synonym: *Bossiaea rossii* F. Muell. *Fragm. Phyt. Austr.* 3:94 (1862). See discussion and lectotypification under notes below.

Many-stemmed leafless shrub 0.5-3.2 m high with numerous divaricate flattened branches, the branches green or yellowish, distinctly flattened, 2.5-6 mm wide, faintly or distinctly longitudinally striate, the margins notched at the nodes, often terminating in a short spine, glabrous or occasionally sparingly pubescent or puberulous. *Stipules* inconspicuous. *Leaves* reduced to minute scales up to 1 mm long, with a mass of fine dark glandular processes in the axils. *Flowers* mostly 1 or 2 per axil, on glabrous pedicels up to 2 mm long, the pedicels with a pair of ovate papery brown bracteoles 1.5-2.5 x 1.6-2.1 mm which overlap the base of the calyx, the bracteoles strongly convex outside, concave within, glabrous or with apical marginal cilia. *Calyx* up to 4.3 mm long, the lowest lobe often slightly longer than the others, the lobes \pm as long as or shorter than the tube, glabrous outside except

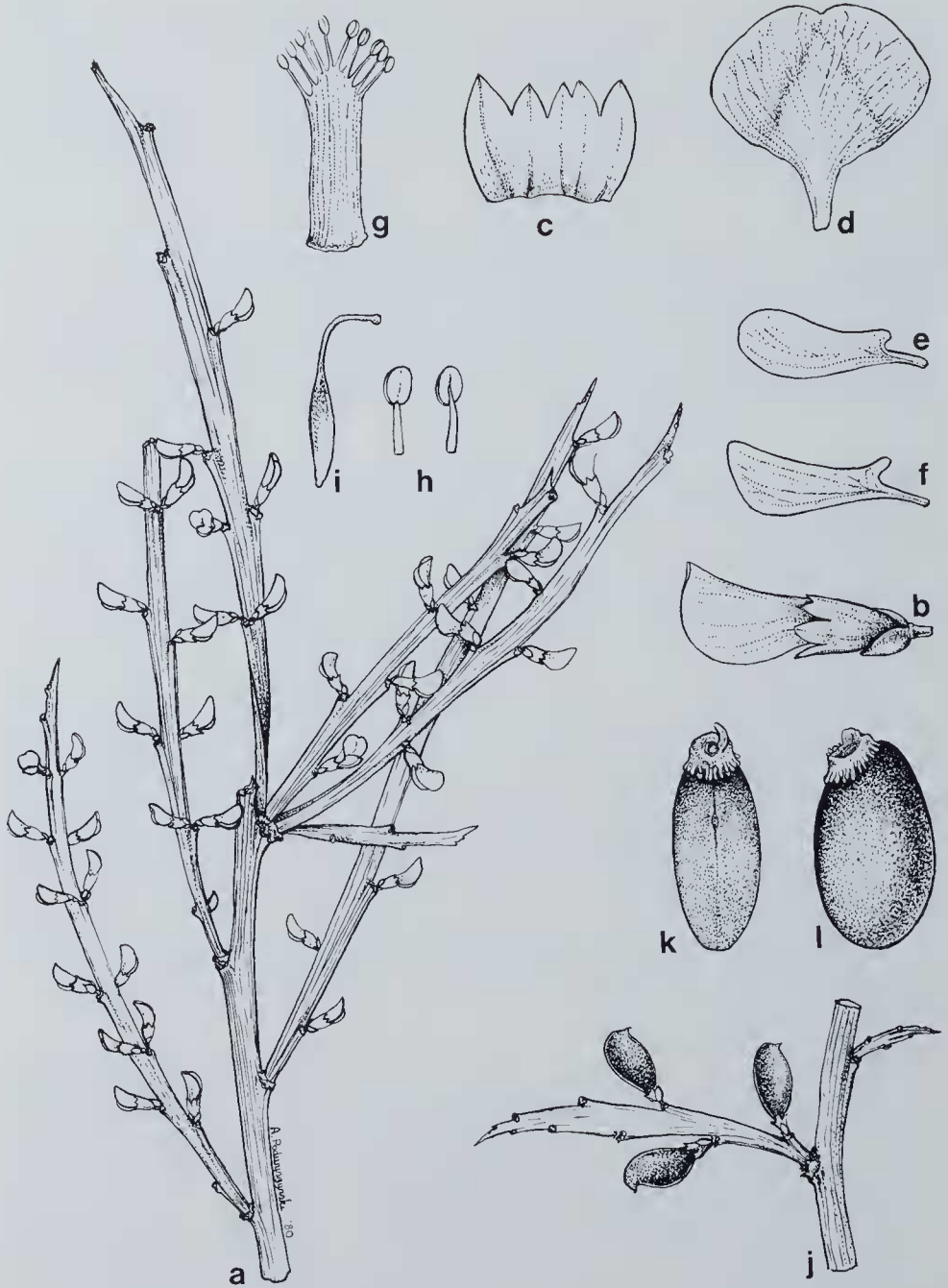


Fig. 13. *Templetonia sulcata*. a—flowering twig, x 1; b—side view of flower, x 4; c—calyx opened out (lower lobe on left), x 5; d—standard, x 5; e—wing petal, x 5; f—keel petal, x 5; g—staminal tube opened out, x 5; h—rear view of anthers showing attachment of filaments, x 10; i—gynoecium, x 5; j—fruiting twig, x 1; k—seed, hilar view, x 6; l—seed, side view, x 6. a—i from M. G. Corrick 6223 and B. A. Fuhrer (MEL 1515223); j from R. D. Royce 10168 (PERTH); k, l from Miss Cronin (MEL 92113).



Fig. 14. The known distribution of *Templetonia sulcata*.

for a fringe of hairs on the apices of the lobes, often pubescent within. *Standard* oblate, 5.5-7.5 mm long including a claw up to 1.5 mm long, 5.5-6.5 mm wide, emarginate apically, yellow inside on the margins with a deep yellow basal horseshoe-shaped throat surrounded by a purplish fringe, purplish-brown outside except for yellow towards the margins; wings up to 5.5 mm long including a claw up to 2 mm long, up to 2.3 mm wide, auricled, purplish-brown outside except for a faint yellowish tinge towards the margins; keel petals lightly united, up to 5 mm long including a claw up to 2 mm long, up to 2.3 mm wide, auricled. *Stamens* up to 4.5 mm long. *Ovary* subsessile or ery shortly stipitate, 2-6-ovulate, glabrous. *Pods* obliquely obovate or elliptic, narrowed to an acute lateral apical beak, of two distinct sizes, 0.75-2.5 cm long x 0.4-1.4 cm wide x 0.2-0.8 cm thick, sessile or very shortly stipitate, 1-2-seeded, valves coriaceous, convex, dark brown, glabrous. *Seeds* elliptic, of two distinct sizes, 4-14.5 x 2.2-8.5 mm, the small hilum surrounded by a collar-like aril (Fig. 13).

The plants currently referred to *T. sulcata* are widely distributed in south-western New South Wales, north-western Victoria, south-central and south-eastern South Australia and south-western Western Australia, although the West Australian and South Australian populations are separated by a large geographical discontinuity (Fig. 14).

NOTES:

In New South Wales, Victoria and South Australia the plants are relatively uniform small to medium sized shrubs having flowers with conspicuous brown scarious bracteoles up to 2.5 mm long which are sometimes almost as long as the calyx-tube, calyces typically with 4 acute lobes although sometimes the upper lobe is slightly emarginate or dentate apically, small pods 0.75-1.8 x 0.4-0.75 cm and seeds 4-5.5 x 2.2-2.7 mm in which the small hilum is surrounded by a collar-like, frilly-margined aril with a raised lateral lip. However, in Western Australia the material traditionally referred to *T. sulcata* embraces two extremely closely related but different taxa which can only be distinguished with certainty when fruiting material is available. In addition to the small-podded taxon found in the eastern States, a large-podded taxon occurs which differs in having pods 1.4-2.5 x 0.95-1.4 cm and seeds 10-14.5 x 6-8.5 mm which lack the distinctive frilly-margin on the aril. While there is overlap in pod length between the two taxa, there is an absolute discontinuity in pod width and in seed size and there are significant differences in seed shape which suggest that each taxon should be accorded formal taxonomic recognition (Fig. 15). However, in the absence of fruiting material the two taxa in Western Australia are often extremely difficult to distinguish with any degree of confidence as reliance has to be placed on floral and vegetative differential tendencies which to date have not proved to be particularly satisfactory. The taxon with large pods appears to grow as a large shrub and there is a suggestion that it has slightly different ecological preferences to the small-podded taxon, at least in the Wongan Hills—Lake Moore

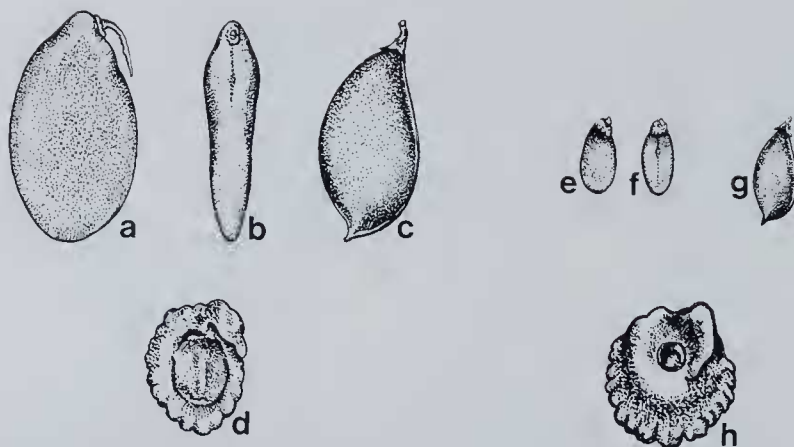


Fig. 15. *Templetonia sulcata*: comparison of pod and seed sizes of the big-podded (a–d) and small-podded (e–h) taxa. a—seed, side view, x 2; b—seed, hilar view, x 2; c—pod, x 1; d—hilar view of aril, x 9; e—seed, side view, x 2; f—seed, hilar view, x 2; g—pod, x 1; h—hilar view of aril, x 9. a–d from B. H. Smith (MEL 580089); e, f, h from Miss Cronin (MEL 92113); g from Miss Eaton (MEL 92110).

area (B. H. Smith, in litt.), but it is not known whether the alleged differences in habit and habitat apply throughout the distributional range of “*T. sulcata*” in Western Australia as most collectors regrettably make little or no mention in their notes of habit and habitat preferences. The flowers of the large-podded taxon have less conspicuous bracteoles which are much shorter than the calyx-tube, and the calyces typically have 5 short obtuse lobes and the ovaries often contain 4–6 ovules as opposed to the 2–4 usually found in the small-podded taxon. There do not appear to be any other significant floral or vegetative differences between the two taxa. While these apparent differences in floral characters do enable much of the flowering material in Western Australia to be sorted quite readily into two groups, the characters are inconsistent and a number of specimens cannot be placed with confidence, especially in the area where the distributions of the taxa overlap.

The known distribution of the two taxa in Western Australia is shown in Fig. 16. The large-podded taxon occurs largely north of a line which approximates very roughly with the Great Eastern Highway from Perth to Coolgardie, while the small-podded taxon occurs most frequently south of the Highway. However, the taxa occur sympatrically over a fairly large area and apparently each can be expected in an area bounded very approximately by Wongan Hills and Koorda in the north and by York and Coolgardie in the south. Many of the flowering specimens from within this area are difficult to place with confidence.

Unfortunately Preiss 1028, the type of *T. sulcata*, is a flowering specimen with very young pods collected near York from an area where both the small-podded and the large-podded taxa might reasonably be expected to occur. I have studied the type material repeatedly but at present am unable to match the type collection with flowering material of either the small-podded or the large-podded taxon with confidence. This inability to identify the type specimen as belonging to either the small-podded or the large-podded taxon with certainty places the correct application of the name *T. sulcata* in doubt. This is most unfortunate, but, until the identity of Preiss 1028 is established beyond doubt, it is proposed that the name *T. sulcata* continue to be used in a broad sense for both taxa even although this is, of course, unsatisfactory. However, little advantage is seen in rejecting *T. sulcata* as a name of uncertain application at this stage and supplanting it with another name which may in time itself have to be replaced.

Careful and detailed field studies are required in Western Australia in an endeavour to resolve this perplexing problem. Information is required on the varia-

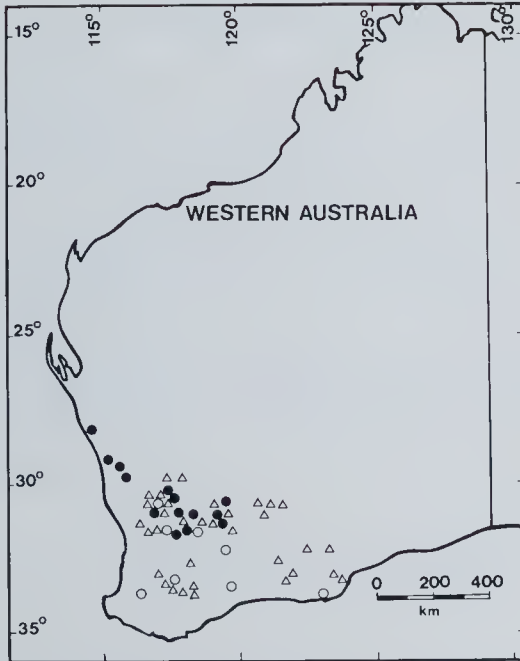


Fig. 16. The known distribution of *Templetonia sulcata* in Western Australia. ● — fruiting specimens with 'big' pods; ○ — fruiting specimens with 'small' pods; △ — sterile and flowering specimens and specimens with immature pods which cannot be referred to either the big-podded or small-podded taxon with certainty.

tion within and between populations, the flowering times, flower colour, habit and ecological preferences of the two taxa. If intensive field studies fail to establish the identity of Preiss 1028 then, and only then, is it considered appropriate to reject *T. sulcata* as a name of uncertain application.

If Preiss 1028 proves to be a flowering specimen of the small-podded taxon, then *T. sulcata* will be the correct name for this taxon and a new name will be required for the large-podded taxon. If, on the other hand, Preiss 1028 represents the large-podded taxon, then the name *T. sulcata* will have to be adopted for this taxon and the small-podded taxon will require another name. As it so happens, a name is available for the small-podded taxon, namely, *Bossiaea rossii* F. Muell., *Fragm. Phyt. Austr.* 3:94 (1862), although a new combination in *Templetonia* would be necessary.

Mueller based his description of *B. rossii* on specimens collected "In collibus arenosis et planitiebus apricis ad flumina Murray et Avoca, lacum Tyrrell versus". Curiously there are no specimens in the National Herbarium of Victoria bearing the name *Bossiaea rossii* in Mueller's hand, or in any other hand for that matter, and there is no type material of *B. rossii* at Kew or the British Museum (Natural History). There are in MEL only two specimens, each bearing a label in Mueller's hand, which could conceivably represent type material, namely, MEL 565687 bearing the information "*Templetonia sulcata* Benth., Murray" and MEL 20342 with the information "Frutex 1-2' alt. In planitiebus apricis ad fl. Avoca, 4 Dec. 53, F. Mueller." The label of MEL 565688 reads "*Bossiaea sulcata* Meissn., From the junction of the Murrumbidgee to Lake Lalbert" but this specimen was cited by Mueller, *Fragm. Phyt. Austr.* 3: 168 (1863), which suggests that it was collected subsequent to the publication of the protologue of *B. rossii* and this, coupled with the fact that the locality does not accord with the localities cited in the protologue, makes it unlikely that the specimen is a syntype. MEL 20342 and MEL 565687 are regarded as syn-

types of *B. rossii* and MEL 20342 from "in planitiebus apricis ad fl. Avoca" is here selected as the **lectotype**.

Mueller recognised that *B. rossii* was closely related to *T. sulcata* but distinguished his new species by its smaller stature, branches that lacked pungent tips and calyces which were quasi 4-lobed, the upper lobe being broad and shortly dentate or emarginate apically. Bentham, Fl. Austr. 2:171 (1864), regarded *B. rossii* as a synonym of *T. sulcata* and the two have since been considered conspecific.

REPRESENTATIVE SPECIMENS OF TAXON WITH SMALL PODS:

Western Australia—Lake Wagin, 1891, *Miss Cronin* (MEL 92113). 19.2 km SW. of Mt. Ragged, 6.xii.1960, *A. S. George 2046* (PERTH). Manmanning Railway Dam Reserve, Avon location 25363, 4.xi.1980, *B. H. Smith* (MEL 580087).

South Australia—Alawoona, ii.1913, *J. B. Cleland* (AD 97402057). Eyre Peninsula, Section 21, Hundred of Murlong, 8.xii.1959, *R. L. Specht & C. M. Eardley 2053* (AD 97404431). Northern Yorke Peninsula, ± 5 km S. of Bute, 8.xi.1966, *B. Copley 874* (AD 96708148).

New South Wales—Pulletop Nature Reserve, 40 km NW. of Griffith, 30.ix.1969, *J. H. Willis* (MEL 566292). 20 km W. of Balranald, 18.viii.1977, *W. E. Mulham 1222* (NSW 143404). 31 km W. of Euston along Sturt Highway towards Mildura, 18.viii.1979, *M. D. Crisp 5728* (MEL 577902).

Victoria—Hattah Lakes National Park, 25.ix.1969, *G. W. Anderson* (MEL 566290). 51.2 km NNW. of Underbool P.O., 28.ix.1972, *A. C. Beaglehole 40494* (MEL 528632). Speed, 27.viii.1979, *M. G. Corrick 6223 & B. A. Fuhrer* (MEL 1515223).

REPRESENTATIVE SPECIMENS OF TAXON WITH LARGE PODS:

Western Australia—Hines Hill, W. of Merredin, 6.xii.1961, *R. D. Royce 6773* (PERTH). Great Eastern Highway, near old Southern Cross cemetery, 19.ix.1963, *J. H. Willis* (MEL 566295). 11.2 km E. of Winchester, 25.xi.1972, *C. Chapman* (PERTH). Koombarkine, 13.xii.1980, *B. H. Smith* (MEL 580089).

The distinctly flattened stems distinguish *T. sulcata* from both *T. egena* and *T. battii*. The occurrence of the two very closely related leafless taxa with flattened stems that are currently referred to *T. sulcata* is reminiscent of the relationship that exists between *T. egena* and *T. battii*.

EXCLUDED SPECIES

Templetonia regina J. Drummond, J. Bot. & Kew Gard. Misc. 5: 312 (1853); Ross, *Muelleria* 4: 389-390 (1981) = ***Brachysema aphyllum*** Hook., Curtis's Bot. Mag. t. 4481 (1849).

ACKNOWLEDGEMENTS

I am most grateful to Dr A. A. Munir, State Herbarium of South Australia, for answering a number of enquiries and for photographing several type specimens while serving as the Australian Botanical Liaison Officer at Kew Herbarium, Royal Botanic Gardens, England; to Mr A. S. George, Bureau of Flora and Fauna, Canberra (formerly of the Western Australian Herbarium, Perth) for assistance in several ways; to Miss A. M. Podwyszynski, National Herbarium of Victoria, for preparing the illustrations that accompany the text; to the Directors of Kew Herbarium, the Naturhistorisches Museum, Wien, and of the Australian herbaria for the loan of specimens; to the Bureau of Flora and Fauna, Dept. of Home Affairs and Environment, Canberra, for a grant under the Australian Biological Resources Study Participatory Programme for technical assistance; to Mrs M. A. Powell for assisting with the compilation of distribution maps and to Miss T. Munro for typing the manuscript. Finally, it is a pleasure to acknowledge the assistance received from Mr and Mrs B. H. Smith, Wongan Hills, Western Australia, who so kindly undertook field studies on my behalf and provided specimens, field observations and colour transparencies which permitted a better appreciation of the taxonomic complexity surrounding *T. sulcata*.

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Manuscript received 18 March 1981.

